

AMERICAN BUILDER

Including "BUILDING DEVELOPER" and "HOME BUILDING"

A SIMMONS-BOARDMAN PUBLICATION

Vol. 49.

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No. 6

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Published on the first day of each month by the American Builder Publishing Corporation. *President*, Edward A. Simmons; *Vice-Presidents*, Henry Lee and Samuel O. Dunn; *Secretary*, Elmer T. Howson; *Treasurer*, John T. DeMott; *Editors*, Bernard L. Johnson and Charles G. Peker; *Associate Editors*, P. W. Hanna, E. B. Quigley, L. E. Arent; *Business Manager*, Robert H. Morris; *Advertising Staff*, Delbert W. Smith, C. R. W. Edgcumbe, L. H. Reich, O. H. Sutter, Cecil W. Blashill, R. E. Clement, Homer Beach.

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AND OF THE ASSOCIATED BUSINESS PAPERS

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AMERICAN BUILDER

Including "Building Developer" and "Home Building"

BERNARD L. JOHNSON AND CHARLES G. PEKER, Editors



To Start Home Building Finance the Speculative Builder

THE number of homes built this year is not only far less than last year, but is below normal. Why?

Some months ago President Hoover urged the building of homes as a means of bringing back prosperity. Ex-President Coolidge in a recent article urged Americans to build homes now. Other prominent men also have voiced the same plea.

At the recent Toronto Convention of the National Association of Real Estate Boards a report was presented stating that almost a billion dollars was available for loans by the regular lending institutions in 48 cities for the building of homes of a *non-speculative character*.

There has, however, been no great rush of prospective home builders to build. Why?

To our mind there are two reasons for the public's neglect of this opportunity:

First, there still is the troublesome second mortgage problem.

Second, many people prefer to buy a house already built.

In other words, they want to buy houses built by a "Speculator," for they know that many construction and financing economies are possible in group building and they can see exactly what they are buying.

Sufficient housing seems to exist in the majority of our large cities. A large percentage of this housing, however, is obsolete and would become tenantless if modern housing could be obtained.

One way to start this home building prosperity ball moving is for our financial institutions to raise their embargo on loans to speculative builders.

We are not suggesting that they make unwise loans to "jerry builders," but give adequate financing to experienced builders. These men are well known in their communities, know local conditions, know the kind of house that will sell and are not apt to over-build.

There are many thousands of such builders throughout our country. They are successful developers, and they would go right ahead with a conservative program of home building if proper financial backing could be secured.

For proof that the public will buy modern houses now, it is only necessary to view the operations of those developers that are big enough to finance their own projects. They have gone right ahead building and selling homes in this year of business depression.

If the various committees interested in the return of prosperity will look at present-day buying moods of prospective home owners, they will find that to stage a home building revival it will be necessary adequately to finance substantial "speculative builders."

The White House Conference

THE home building industry is appreciative of the numerous conference and committee efforts being made to assist it back to normal. The latest comes from the White House.

President Hoover has appointed the heads of some nineteen national business, professional, trade and civic organizations to investigate the problems presented in home building and ownership with a view to "removal of influences which seriously limit the spread of home ownership, both in town and country." This commission, to be known as the White House Conference on Home Building and Home Ownership, is headed by Secretary of Commerce Lamont. John M. Gries, chief of the Division of Building and Housing of the Commerce Department, is to act as executive secretary.

The plan is to set up nation-wide sub-committees to study different phases of the present problems of home ownership. "One of the important questions is finance," the President said in announcing the commission. "In order to enable the purchase of homes on what amounts to the installment plan, it is necessary to place first and, often enough, second mortgages. First mortgages, carried so largely by the savings banks and insurance companies, have been affected by competition with bonds and other forms of investment. Second mortgages, which are also necessary to many people, have, if we take into account commissions, discounts and other

charges, risen in rates in many cities to the equivalent of 20 or 25 per cent per annum, all of which not only stifles home ownership, but has added to the present depression by increasing unemployment in the trades involved."

The agencies invited to participate in the President's commission include such organizations as the American Civic Association, American Farm Bureau Federation, American Federation of Labor, Association of Life Insurance Presidents, the Chamber of Commerce of the United States, the General Federation of Women's Clubs, the National Association of Real Estate Boards, the National Congress of Parents and Teachers, the Savings Bank Division of the American Bankers' Association, United States League of Building and Loan Associations, the Women's National Farm and Garden Association and other organizations with a background and educational machinery calculated to reach a maximum number of prospective home builders as individuals.

Such a group of organizations should be in a position quickly and effectively to accomplish this much needed merchandising of small mortgage funds, as well as the equally needed revival of a feeling of optimism and confidence on the part of potential home builders.

A number of other questions, Mr. Hoover said, both as to financing and design and cost of residential construction will be taken up by the commission, but the immediate effect, the present situation seems to indicate, will be instilling "a will to build" generally and pointing the way to the fulfillment of such an attitude by home builders.

July Permits Increase

SOME improvement in the building situation throughout the United States was noted during the month of July, according to official reports of building permits issued in 589 leading cities and towns as compiled by S. W. Straus & Co. The volume of prospective construction planned during July, the permit figures show, was \$187,570,714, compared with \$184,665,439 in June, a gain of a little less than 2 per cent. Normally there is a decline of not quite 13 per cent between the two months. However, building generally is still far from normal, as is shown by a comparison of July, 1930, with July, 1929. Permits in July of this year declined 36 per cent from the \$292,912,550 volume of permits issued in the same month last year.

*AN ANNOUNCEMENT
of greatest interest to American
Builder readers will be made in
the October issue.*

To Settle Jurisdictional Disputes

THROUGH a joint meeting of builders and executives of international building trades unions held on July 31 at Atlantic City, a tribunal for adjustment of jurisdictional disputes between building trades was established.

This adjustment board is called the Board of Trade Claims and its personnel is comprised of the executive council of the building trades department of the American Federation of Labor and an equal representation of the National Association of Building Trades Employers. Several joint meetings preceded the Atlantic City meeting where terms of the new board were ratified by a general meeting of builders and the leaders of building trade unions.

Builders point out that the ever changing materials used in construction made it essential for them to establish some plan through which jurisdictional disputes would be eradicated from the construction industry. They refer to the fact, as an example, that work done today in wood by carpenters may give way tomorrow to metal, and consequently be claimed by the sheet metal workers. Such substitutions affecting various trades are constantly occurring, and there is usually a dispute as to what trade is entitled to the work.

While definite estimates of the economic loss occasioned to the American public by such controversies are lacking, it is agreed among builders that the annual loss should be placed at approximately \$50,000,000.

The new Board of Trade Claim replaces the old Jurisdictional Awards Board, which was abolished when the building trades department of the A. F. of L. voted at its Los Angeles convention in 1927 to sever affiliation. If architects, engineers, builders, owners, contractors and others concerned with construction work will take note of the decisions and findings handed down by this National Board of Trade Claims and observe them in drawing up specifications and making contracts, they will contribute much to the harmony of the building industry.

Reserve Supply Associations

BETTER service to builders is one of the outstanding advantages of the Reserve Supply plan, which the lumber and supply dealers of several important cities have been experimenting with and now have in successful operation.

Under this Reserve Supply plan the several dealers in a community get together to establish in common a warehouse stock of the various specialties—such as stained shingles, asphalt roofings, knock-down window and door frames, insulation boards, wall boards, etc.—for which there is a considerable demand, and yet so many brands and styles that it would be burdensome for any one dealer to carry them all in stock. However, under this Reserve Supply plan, all of the dealers, by pooling their orders and carrying all such stock in a central warehouse, are able to get the lowest carload price, at the same time reducing their total inventory and enabling them to serve all builder requirements promptly out of this central stock.

Minneapolis, Cleveland, Denver, Grand Rapids, and Madison are some of the cities where this plan is in operation. The idea is economically sound; and without doubt will be taken up very generally by the lumber and supply dealers in other cities. If so, it will mean lower prices and better service and a wider selection of specialty materials for the builders and their clients.

In commenting on the operation of this plan in Madison, Mr. C. W. Davis, President of the C. W. Davis Lumber Company, and a member of the Buying Committee of the Madison Reserve Supply Co., looking back over the two years of successful operation there, told a representative of the *AMERICAN BUILDER* some interesting facts. A check of stained shingles carried in stock by the fourteen Madison dealer members showed an investment of \$13,000 before the central warehouse was established; today their investment in stained shingles is \$2,000, and the supply is not only adequate to the needs of the city, but builders are actually offered a wider selection of colors and brands. Similar savings in inventory have been made in all other lines of specialties which formerly were a considerable problem for the lumber and building supply dealers to carry in stock.

Mr. Davis exhibits in his office sample boards which include every brand and make a specialty material on hand at the central warehouse. Each dealer in the association has a similar display of samples. He stated that this arrangement has made a great difference in his attitude toward these specialties. For instance, formerly he carried only one brand of insulating board, and was accustomed to go out and fight aggressively for this particular brand on every job, often sacrificing his legitimate profit to get the order. Now the situation is entirely changed. He simply talks the value of an insulated building and is prepared to quote on any one of the half dozen insulating boards which are now carried in stock.

This system evidently gives the contractor and builder a wider choice, and permits him to select those types and brands which he personally favors and which he feels, from his experience, will best serve the needs of his clients.

Conversely, there may be a tendency for the dealers to be less aggressive in their merchandising efforts—and this is the danger of the Central Supply pool. Certainly

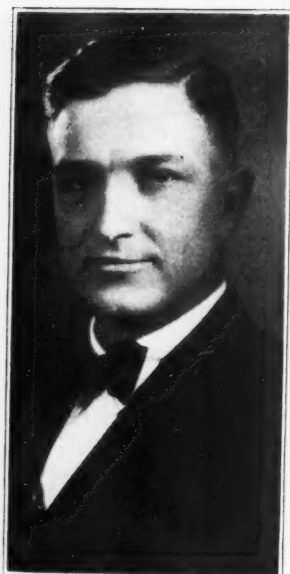
in these days of keen competition from those outside the industry there should be and must be the most active and intelligent merchandising of home building and of all home building materials and accessories by all the active men of the local building fraternity, both builders and supply men.

Fifteen Reasons for Home Owning

THERE are fifteen good reasons why people everywhere should own their own homes, says Herbert U. Nelson, Executive Secretary of the National Association of Real Estate Boards. He has drawn up a list of the things one gets when he owns a home and doesn't get when he rents. Most builders are home owners; they practice what they preach. So when they urge home building or home buying upon others, they know from first hand experience how real those advantages are. Here is Mr. Nelson's list:

1. Financial Independence—More people have started on the road to financial independence, through home owning than in any other way.
2. Security—In times of stress the home is always something to fall back on.
3. A Cash Equity—A well bought home is as good as a savings account.
4. Credit—Home owner can open charge accounts, etc., without difficulty.
5. Peace of Mind—Based on the knowledge that provision has been made for your family.
6. Social Background for Your Children.
7. Play Place for Your Children—Without criticism from landlord.
8. Development of Responsibility—home owner feels more responsibility with regard to his dwelling and the neighborhood.
9. Interest in Civic and Municipal Affairs—This is good for the home owner.
10. Chance for Individual Expression—Exterior and interior of home can be made to express individuality of owner.
11. Permanent Environment—Making neighbors and friends whose friendships last.
12. Habits of Thrift.
13. Healthful Exercise—Pride of possession inspires work around home and garden, which is healthful for indoor business people.
14. Character Development—Responsibilities of ownership in making repairs, etc., develop business acumen and character.
15. Independence—(Other than financial). The home-owner can order his life as he wishes, with no restrictions or interference.

And, in addition to the above reasons, there is always the chance, since you own to the center of the earth, that you may find a gold mine or an oil-well in your own back yard, as many have done!



Chester A. Sterling
Secretary, The Capitol
Building and Loan
Association, Topeka,
Kansas

to quite an extent, from the sale price. This was safe enough as long as we worked on a rising market, but was not so good on a falling market. Consequently, in the early part of 1928, when properties began to decline in price, the officers of The Capitol Building and Loan Association of Topeka noted a certain degree of uneasiness among their borrowers, followed by delinquencies in loan payments. In a short time we had a few properties on our hands and the market was still declining. It seemed that we should easily dispose of properties for the amount of the mortgage, which was less than two-thirds of the value given the properties at the time the mortgage was made, and at first we did dispose of them without any special amount of worry.

The decline of real estate values continued and we had still more properties; some of these coming to us through foreclosure and some of them having been deeded to us for a small consideration. It was now being talked everywhere that there was a decided decline in real estate values; and, of course, this was reflected in the already reduced prices on homes. It was a difficult matter to get all of our money out of any repossessed property. We are not repossessing the good properties upon which we had loans, but rather the poorer class, or in the poorer locations. It was our custom to place these properties upon the market and sell them as they were, feeling that our equity was enough greater than the real value to offset any needed repairs. A little further decline and we found

*Portions of an address, "The Successful Handling of Repossessed Properties," presented by Mr. Sterling at the 38th Annual Convention of the United States Building and Loan League, Grand Rapids, Mich., July 29-31.

"Repossessed"

Building and Loan Official Tells How Old Homes that Don't Stay Sold Are Put Into Modern Salable Condition at a Profit*

A FEW years ago there was a market for almost any kind of a house that one could think of, in almost any location. High prices were paid for properties; and many times, the price seemed very high. Building and Loan Associations, supposed to loan a certain per cent of the value of a property, are forced to determine property value,

that there was no market for the repossessed house and our search for a solution to this difficulty started us in the modernization practice. We very cautiously modernized partially a few homes, and these sold promptly and paid us our investment. This led us to adopt modernizing as an almost universal policy.

In working with our delinquent borrowers, we discovered that many of them were delinquent simply because they were discouraged from lack of modern facilities in the home. And when these had been furnished, the discouraged borrower was changed to a satisfied one and took a new lease on life and again made his payments according to contract.

Modernizing borrowers' homes worked so well and seemed to have such possibilities that we started an extensive advertising campaign, encouraging the people of the city at large, to modernize their homes, and about this time a local modernization association was organized. With it we worked hand in hand. The effects of this advertising campaign were soon apparent in every part of the city. It seemed to start a general clean-up campaign and many a home received a new coat of paint, new shrubbery, new roof, new porches, or other evidences of exterior improvement.

But even though entire communities were given a renewed status, we found it impossible to sell all of our properties. It seemed impractical to hold them vacant over any extended period of time and we began to rent some of them. As properties became more plentiful, renters became more exacting, and finally began to ask

for all the more modern facilities in the home. Every house must be completely equipped with electric plugs, because the installment plan of buying made it possible for every family to have a supply of floor lamps, an electric radio and all of the electric cooking appliances and laundry paraphernalia that is manufactured. The automobile could be purchased as easily, and therefore, there must be at least a one-stall garage with every property. With all of these things supplied, we found that the property rented readily and at a good substantial rental.

One of our suburban tracts had a house upon it which was modern. It even had running water and sewage disposal; and when one prospective renter called to ask about the property and discovered



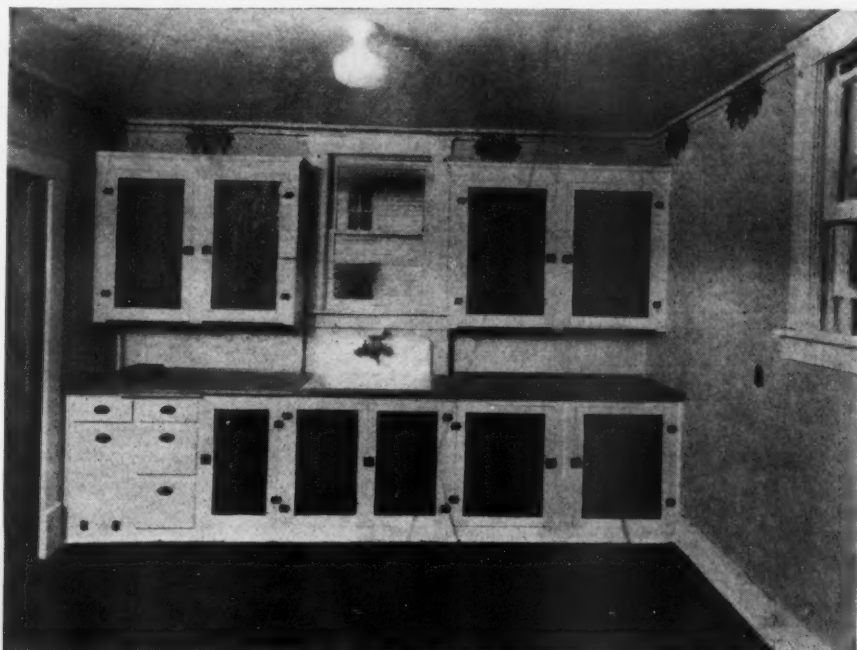
Booklet for Home Owners Shows Advantages of Modernizing

that there was no garage, she remarked, "I am not so particular about the bath, but there must be a garage, if there is none, we would not care to rent the property." This is probably an extreme case, but never-the-less, it illustrates the unfavorable frame of mind in which people are at this time.

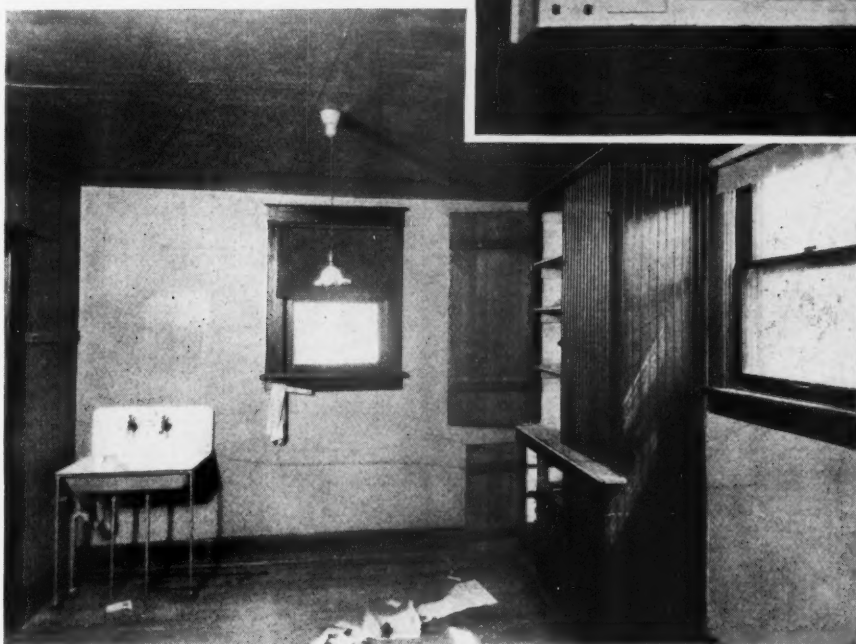
We have done some radical things in modernization which at first cost us money but, in the long run, have been most excellent advertising and have paid us well. In one section of the city a house which came into our possession was on the line between colored and white; and all of the white people were afraid that this house would be sold to colored people. We found that we had several loans in this block and that it would strengthen them materially for us to let the people know definitely where the line was; and we spent considerable money in making this house desirable. In fact, we spent more money than we could ever hope to get out of the property. But we placed a white family in this house, settled the minds of the people in the neighborhood about the colored crowding over into their section and made friends of everyone in that section of the city, whether they were customers of ours or not.

In another part of town we found ourselves in possession of two houses side by side, on the corner of the

tion after it had been completely modernized. We went to considerable work and expense in preparing a booklet which showed photographs of the built-in details before the work started and itemized costs of the modernization work. We had installed a steam heating plant; and, since the inspection was held in the winter time, it was possible to demonstrate this plant to the best advantage. The people who visited the house were intensely interested in every feature; and this one effort paid us well. We made several modernization loans as a direct result. We made some direct sales of other modernized homes from contacts established at this



It Pays to Tear Out Old Kitchen Sinks and Cupboards Like These and Put in Modern Kitchen Equipment.



showing of the sample home.

The selling of homes is done almost entirely from our own office and by our own people. Our purchasers have come to the office in direct response to our advertising or from having been told of these houses by others who have purchased them. Our plan of purchase has been varied, depending entirely upon the moral hazard and the purchaser's ability to pay, but most properties are sold under contract.

If anyone is looking upon modernization as a medium through

which the impossible can be done, they may as well not waste their time; for you cannot take just any old house in any location and modernize it to advantage. It is necessary to make an analysis of all conditions before determining just what should be done. Would extensive improvement of the property be of any great benefit, or would we have a house too good for the location? If our house is too poor for the location, the problem is a simple one—we would bring it up to the neighborhood standard. Should our work extend to both interior and exterior? Is the house too large or too small for the community? What do the neighbors think about it? In other words, make a very exhaustive survey, because

block. They were the old original houses of that neighborhood and were many years older than the fine houses on every side. We could probably have sold these houses to people who were not really particular about modern conveniences; but again we felt that it would be unjust to the neighborhood to do this. And so we took these houses, lifted them from their foundations, dug new basements, moved them back into line with the other houses, and changed the interiors and exteriors of both, making them entirely modern and very desirable. (See accompanying illustrations, pages 62 and 63.)

In order to increase the interest of the public in home modernization we opened one of these houses for inspec-

so many things should affect your decision.

If you look upon modernization as a means of getting all of your investment out of the property, you cannot expect this *in all cases*. However, the burden of loss, if any, should not be placed upon modernization, but rather upon those who originally made the loan or upon the general deflation in values. Modernization simply provides an avenue through which a frozen asset may be turned into liquid asset through either a sale or a rental.

Experience has borne out to us the fact that it is

more profitable to take your loss upon an old property at once than to carry it over a long period of time, hoping that you will be able to realize the full amount which you have invested in it. If a reasonable sale offers itself, the smart thing is to accept it.

Modernization does this. It rents houses and they stay rented. Your renters are boosters and through them other renters come to you. Modernized homes sell and stay sold. And these same purchasers are again the best advertisers that you have. You know your experience with old run down houses, how difficult to

Itemized Cost of Modernizing

House moving	\$ 85.00	Medicine cabinet	11.00
Excavating	68.00	Trim hardware	35.00
Foundation and basement		Oak floors	158.00
floor (all new work)....	265.00	Interior paint and varnish.	65.00
Repairs on flue.....	17.00	Papering house	68.00
Roof changes	169.00	Screen work	25.00
Lath and plaster.....	70.00	Built-in cabinets	65.00
Reset and repair furnace..	83.00	New front entrance	60.00
House wiring	44.00	Sidewalks	57.00
Guttering	31.50	Exterior paint on house	
Miscellaneous lumber	32.50	and garage	125.00
Miscellaneous labor	47.00	Grading and seeding yard.	65.00
Light fixtures	75.00	Garage (12 x 20).....	150.00
Bath fixtures	320.00		
Kitchen sink	70.00		
		Total.....	\$2,260.50



Two old houses standing side by side on a good street, but too close together and too near the sidewalk, were moved, modernized and sold at a profit.

either rent or sell and keep rented or sold, and the worry and bother of keeping the renters or purchasers satisfied. This one item of expense and work eliminated, while difficult to estimate in dollars and cents, is vastly important.

You hear much these days about unemployment. We were surprised to find how many of our loans had been made to carpenters, painters, paperhangers, plumbers, stone masons, and members of all the rest of the building trades. When work became scarce, these men applied to us for work, and we gave our modernizing work to

them without regard to whether they were union or non-union, or without regard to race or creed. We have legislated against no one, only asking for a day's work for a day's pay. This has made it possible for many a delinquent borrower to make his payments on his home, and has created a good feeling toward our institution. We have perfected a real organization of these men, placing a foreman in charge who calls his men at any time he is able to use them.

He learns their ability and distributes the work accordingly.

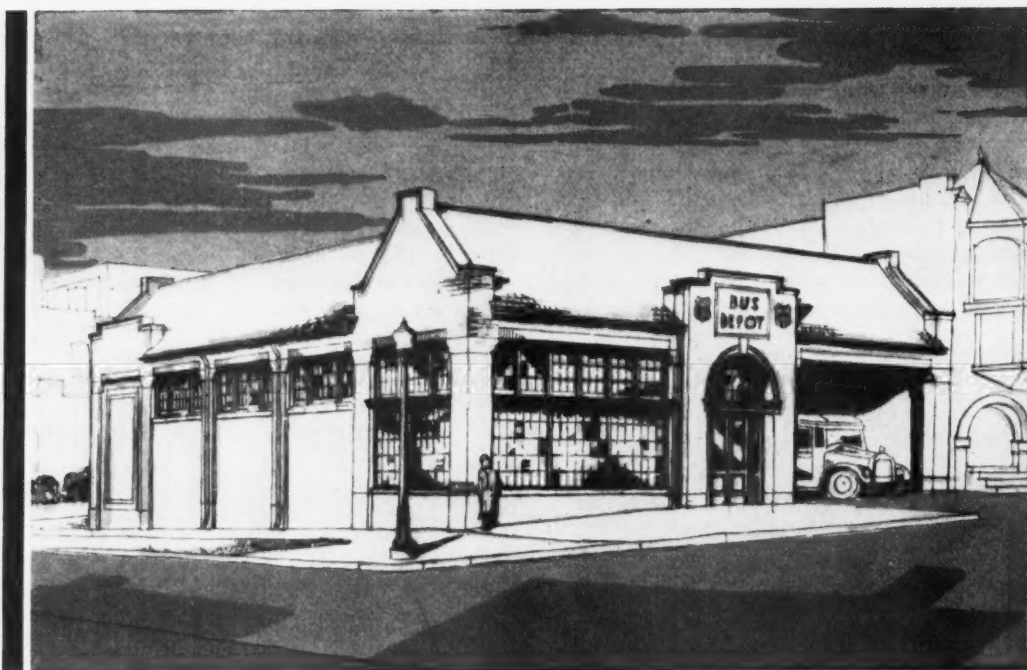
♦♦♦♦♦

Itemized Cost of Modernizing

Moving house	\$ 80.00	Finish hardware	60.00
Excavating	60.00	Wiring	63.00
Basement walls and floor..	150.00	Light fixtures	75.00
Flue	40.00	New stairway	64.00
Sidewalks	100.00	Front entrance	100.00
New roof	85.00	Side entrance	44.00
Guttering and down-spouts	37.00	Interior paint and varnish	186.00
New sewer line	76.00	Papering	86.00
Shingling sides of house...	178.00	Two new doors	20.00
Exterior paint and stain...	100.00	Steam heating plant.....	500.00
Miscellaneous lumber bill..	81.00	Repairs on garage	34.00
Miscellaneous labor bill...	125.00	Kitchen sink	70.00
New windows	72.50	New bath fixtures.....	320.00
Lath and plaster	65.50	Screens	35.00
Oak floors	126.50		
Built-in cabinets	60.00		
		Total	\$3,106.50



Here is the companion house modernized; its mate is seen in the background. This remodeling cost \$3,106.50, while \$2,260.50 was spent on the other.



\$1500 SALVAGED!

Imagination and Common-sense Methods Win

By PAUL MONTGOMERY

BUILDING contractor Elmer E. Knapp of Topeka, though a comparatively young contractor, knows his old buildings. Where other contractors are prone to look at an old structure that has to be wrecked to make way for the new as a liability, Mr. Knapp knows them as assets and his recent handling of Topeka's historic old governor's mansion, fifty-nine years of age, demonstrates his ability to estimate and execute pretty accurately.

This old landmark was Topeka's oldest apartment or flat building. It was known as "The King Row" and in its early infancy was the home of Governor Thomas A. Osborne, Kansas' sixth executive, and of others prominent in state and national affairs. The three units of the building each contained fifteen rooms spread over a high basement and two floors above. It was built of cut stone, range rock and brick. All interior partitions were brick and, to the ordinary contractor, looked like nothing but a pile of refuse, nearly all of which would have to be removed from the site.

Mr. Knapp figured differently.

In the old brick he foresaw all the backing walls and the five interior bearing walls for the reinforced slabs of the new Interstate Bus depot

which he was to erect on the lots. In the sixty year old, full dimension white pine roof and floor joists and rafters he saw a transformation for similar purposes. Another look convinced him that a big gapping cellar hole of the old structure would swallow up practically

all of the unusable refuse. He also knew a man that would buy all the range rock on the lower wall that Knapp didn't need.

Adding all these things up he figured the old building was worth about \$1,500 as it stood over and above labor costs of wrecking. The other contractors didn't see it that way at all and Knapp secured the job.

Just seeing these usable materials wasn't all the \$1,500 figure involved, however. Rapid conversion and a minimum handling was a large factor of the equation; so Knapp set about organizing this end; and so efficiently did he do this that it is well worth the investigation of other contractors who may have similar problems in the future.

After removal of the old roof he knocked holes in the basement wall and set his laborers sliding down old bricks to the masons laying up the five interior bearing walls running clear through the new building. Chutes were so arranged as to deliver



Contractor Elmer E. Knapp

these at the brick layers' feet without any more handling than the placing of new brick would have involved. Deftly rubbing the old bricks together easily and quickly removed the old lime mortar. These new walls counted for quite a bit of the old upper floor walls and interior partitions; and in the meantime the accumulating refuse was starting to fill the cellar hole.

The next step involved new front and rear walls, which project out about fourteen feet further than the old each way. In this operation a most efficient handling takes place; for the laborer just about throws a brick from one wall into the other, as the photograph shows. Next an old side wall comes out and the new takes its place with still a minimum of handling.

At this juncture the remainder of the historic structure appears to become entombed within the rising walls of the new bus depot; and at this writing it is practically all gone and the walls of the depot are nearly done.

Old refuse completely fills the old cellar hole and above to a raised grade line and all of it was placed there by gravity.

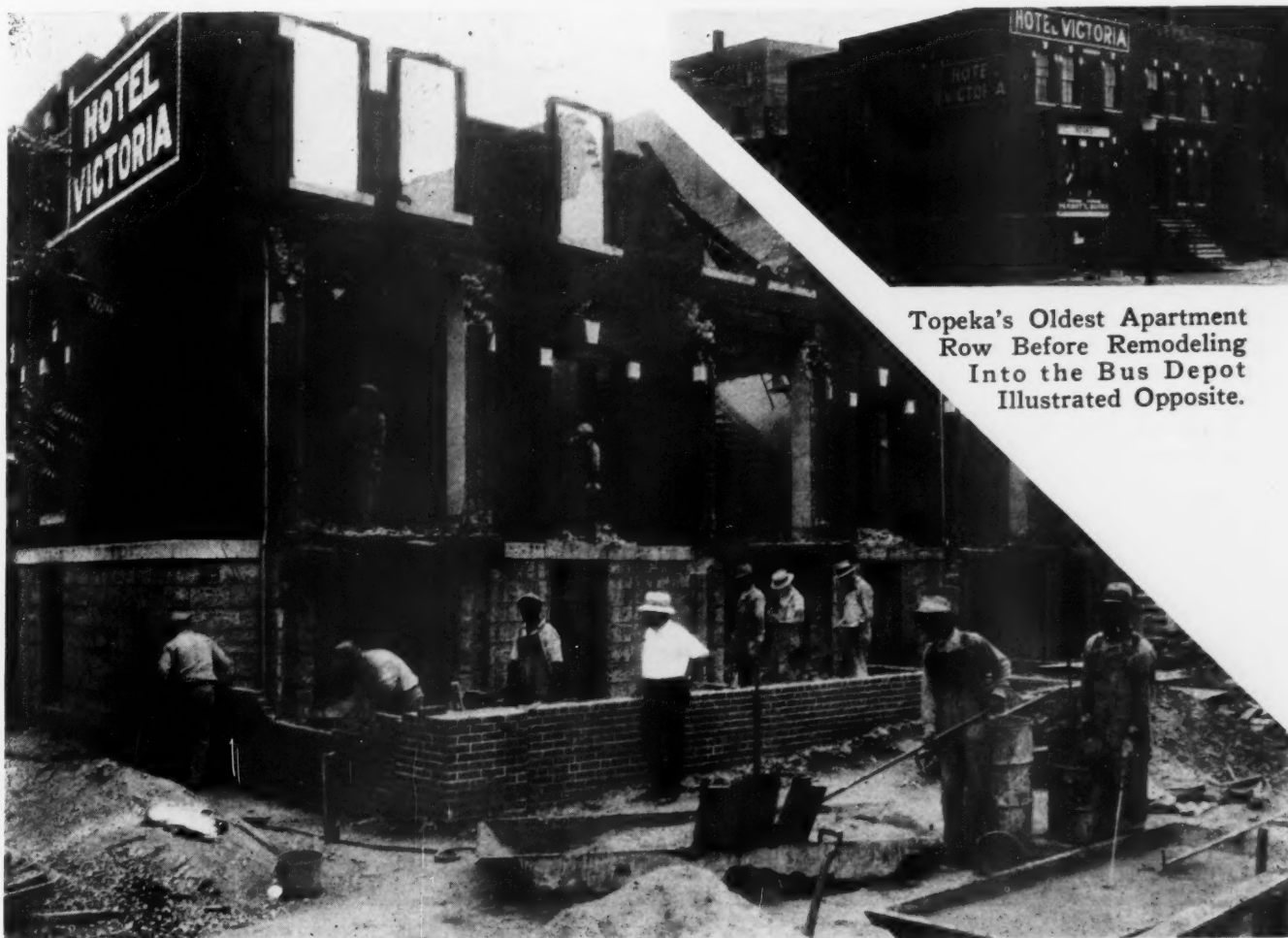
83 Per Cent Salvaged

In our last interview with Mr. Knapp he informed us that about eighty-three per cent of the old building had gone into the new and that it yielded its \$1,500 estimated value and a little more over.

Aside from these practical demonstrations of a well organized job there seems to have been gratified a sentimental viewpoint also. The old structure, rich in early history, did not seem to die at all under Knapp's hands but merely took on a new form to better fit itself for modern industry.

Sixty years ago the Union Pacific Railway system, whose subsidiary, the Interstate Transit Lines, will occupy the new structure, hauled all the brick and lumber into Topeka that is now going back into their own building. Incidentally, again, Mr. Knapp, who says he is not a Scotchman, is saving a handful of the 60 year old square-cut iron nails to be re-used. He claims he is only doing it for sentimental reasons and does not expect a profit in the operation.

By Using Historic Topeka Mansion To Build New Bus Terminal



Topeka's Oldest Apartment Row Before Remodeling Into the Bus Depot Illustrated Opposite.

Remodeling Under Way—the Old Bricks Going Directly Into the New Walls. Contractor Knapp stands in front of the wall.

MODERNIZING SUGGESTIONS

FOUR LOVELY HOMES FROM

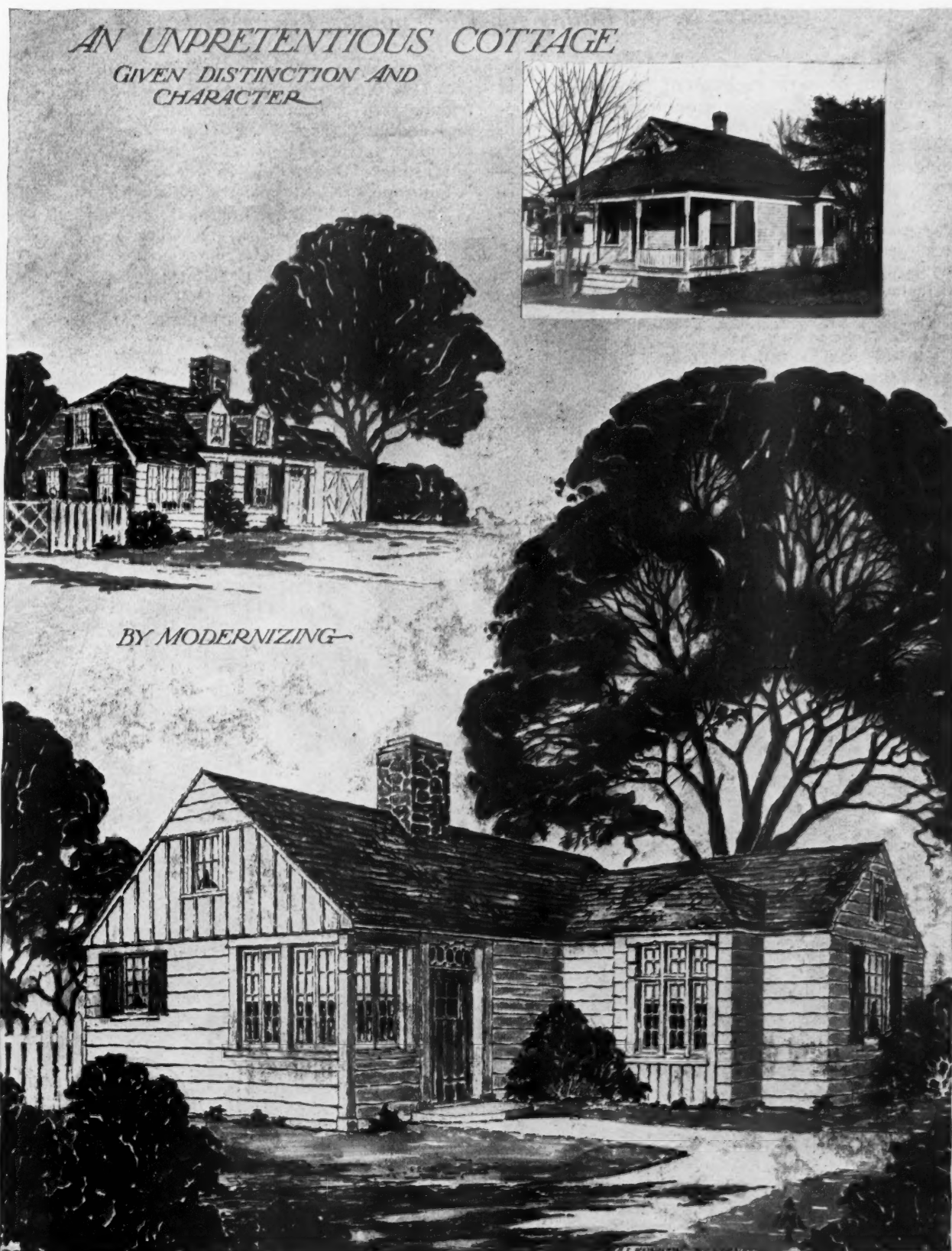


THIS UNATTRACTIVE HOUSE



THE square box with hip roof has been America's most practical house. The architects of the National Lumber Manufacturers Association show here four ways to enlarge and beautify these old homes.

OLD HOME WITH NEW LOOK



DO away with the old porches and the stilted high foundation lines, if you would give the correct modernized look to the old home. Here are two schemes for bettering an ordinary little cottage.

Homes for \$6450

How Charles H. Reis, Inc., Building Developer, Bergen County, N. J., Builds for the Popular Price Market

MUCH is being said and written these days about getting down the high cost of home building and home buying. An immense market unquestionably is waiting in many cities for the offering of well-built, tastefully designed small homes in proper surroundings, at a cost ranging from \$5,000 to \$6,500.

This is a challenge to the building industry. To accomplish such construction and to offer it at such a price—complete with fully developed lot and with financing arranged so that the average home seeker can move right in and pay out "on easy terms," monthly like rent—is no simple or easy task.

In general such a program requires organizing ability of a high order and a sufficient volume of building to secure all possible economies.

Charles H. Reis, Inc., of Hackensack, N. J., is a notable example of the large building developer who

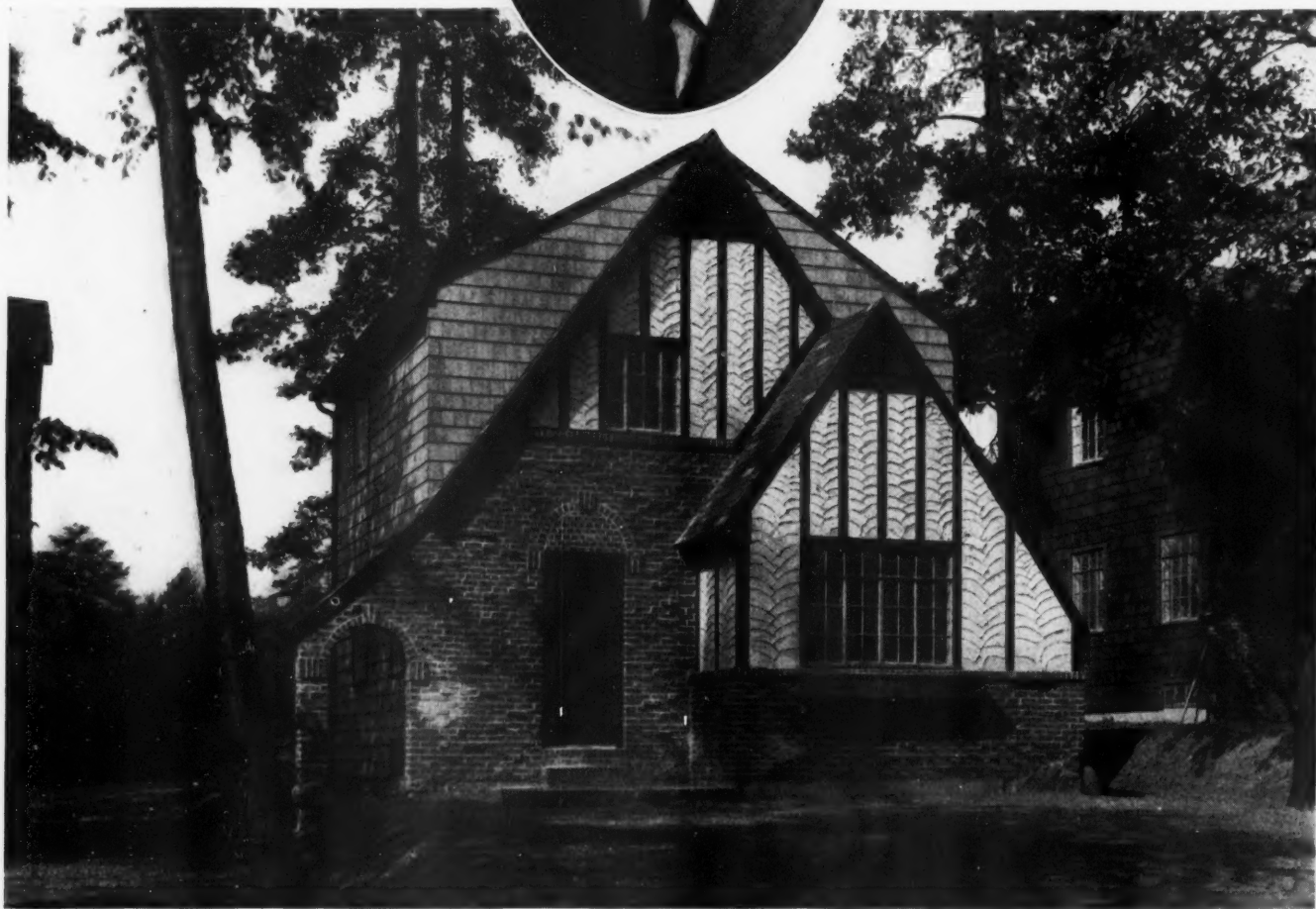
has succeeded in giving the suburban minded folks of the New York metropolitan area what they want in popular priced homes. How this organization operates and how their quick selling homes are designed, arranged, financed, built and sold is, of course, a very interesting story to other builders.

Sunshine City, at Woodridge, N. J., is the product of this firm of developer-builders, erecting and selling in less than four years over 1,000 homes, together with a business center of about 15 stores. This present year 100 of these homes were built, completing this project and releasing the energies of this organization to still another development, even more ambitious in scope, "Allwood" at Clifton, N. J., where some 4,500 low cost homes will be erected on a 500 acre tract during the next seven years.

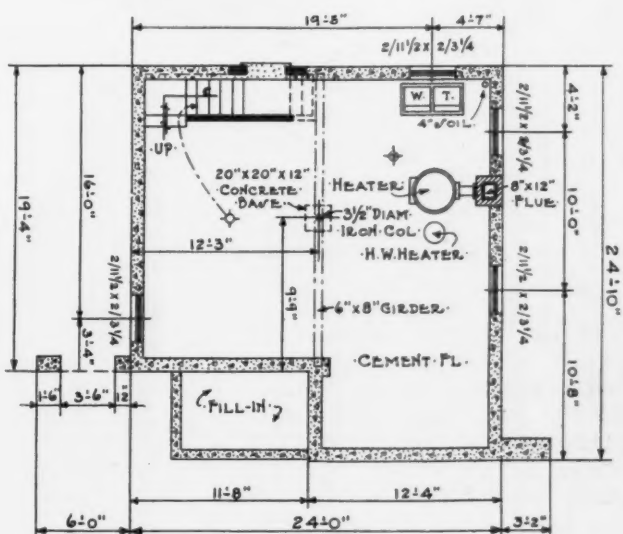
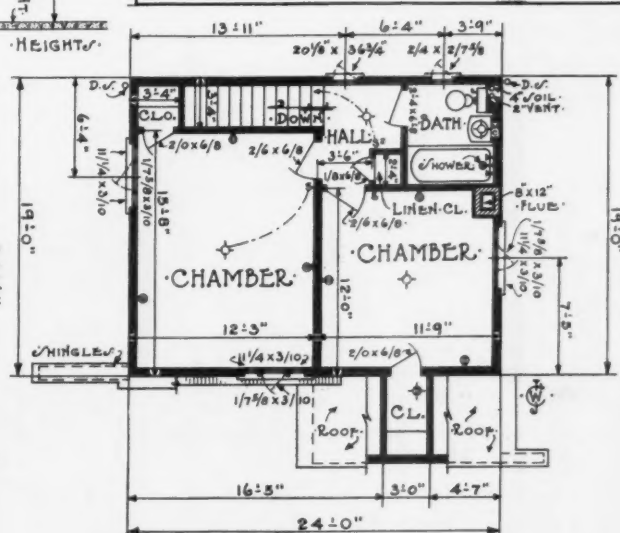
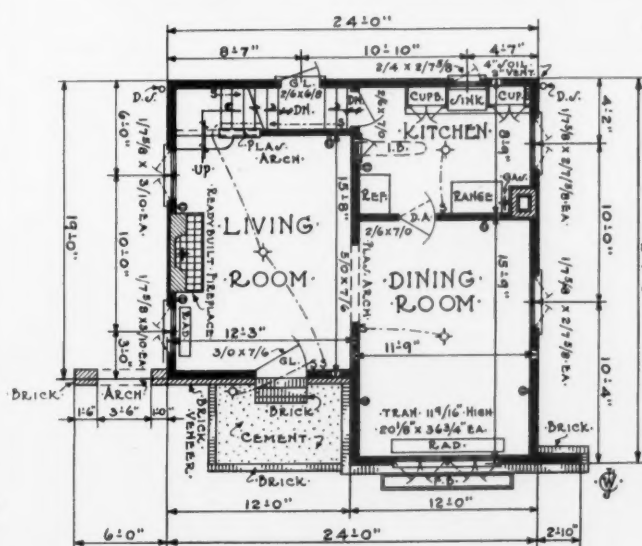
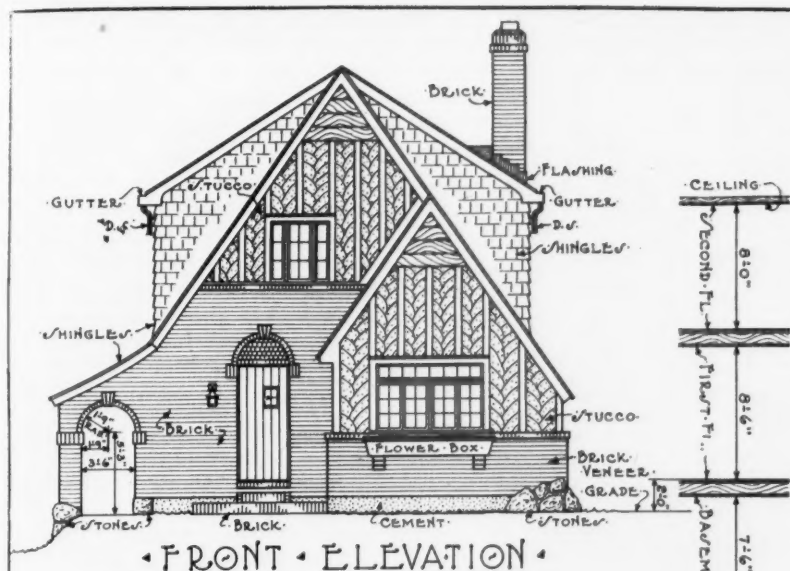
The land comprising Sunshine City is located along the main high-



Charles H. Reis, President



"Old English" Design Homes Like This Were Built by Charles H. Reis, Inc., in the Sunshine City Development at Woodridge, N. J., to Sell for \$6,450. See page 69 for plans and page 70 for interior views and another treatment of the exterior.



COST OF MATERIALS AND EQUIPMENT IN THIS SUNSHINE CITY HOME

Excavation and Foundation:	
Ten-inch cement block foundation wall; cellar floor and sidewalks.....	\$ 635.00
Carpentry and Millwork:	
Fir rough lumber; white pine exterior trim; ¾-inch oak flooring; chestnut and cypress interior trim.....	1,500.00
Roofing and Sheet Metal:	
Stained red cedar shingles; flashings, val- leys, rain-pipes and 18-oz. copper.....	320.00
Lathing and Plastering:	
Wood lath throughout; rough plaster, gypsum; finish plaster, hydrated lime....	400.00
Stucco and Brickwork:	
Common brick, rough laid for front; metal lath used as reinforcement for stucco of portland cement	265.00
Painting and Decorating:	
White lead paint for interior; exterior trim and siding stained; floors varnished; walls tinted	475.00
Electrical Work:	
Wiring system and lighting fixtures.....	265.00
Plumbing:	
Brass pipe for all hot and cold water lines; plumbing fixtures; gas range.....	585.00
Heating:	
Steam boiler; radiators; automatic heat regulator; insulation for steam pipes.....	520.00
Grading and seeding.....	90.00
Legal fees, financing, insurance, etc.....	270.00
Value of land, 40 x 100	1,125.00
Total	\$6,450.00

ing curb and sidewalks. All houses are set back from the street line which gives an unusually wide appearance to the streets. The lots are 140 feet deep which allows for a liberal back yard in addition to the front lawn. Since a number of the houses are located on hills, the necessary terraces in front of them add to the picturesqueness of the village.

Sunshine City is a community of low cost, five or six room houses selling at from \$5,500 to \$7,950. The type of people to whom they were sold are steady working and frugal; and the homes

Plans of This Attractive Low Cost Home; Size About 24 Feet Square; Five Rooms and Bath; Actual Construction Cost Less than \$5,000. Paul J. Jossier, Architect.

way between Rutherford and Hackensack, N. J., in the borough of Woodridge. It is a hilly location which allowed for many interesting vistas. The streets are laid out rectangularly, and paved with concrete, includ-

offered them were entirely within their means to buy.

The active heads of the Reis organization are Charles H. Reis, president, and Newland C. Prior, vice-president. They give their entire attention to the creation

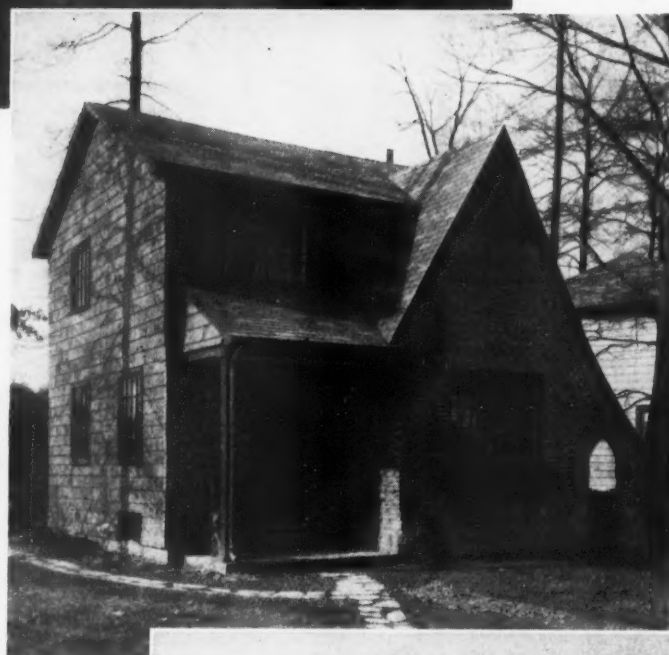


The Living Room Is 12 by 15 Feet, Well Charted for Furniture.

and sale of their product; and one or both can usually be found somewhere on the property or in the office. They set out to create a better type of small home, using well advertised materials and equipment.

The development was started in 1927 in which year 180 houses were sold; in 1928, 410 houses were built and sold; in 1929, 370 houses were built and sold; and in 1930, they erected 45 English type cottages of the design illustrated on these pages. In addition this year they also built close to the business section 55 attached brick homes of an English design. With these final operations, all of the available property bought for Sunshine City has been utilized and the community left completed.

The English type houses that we illustrate were designed by Paul J. Jossier, architect, Palisade Park, N. J. Five different exterior designs were prepared, all to use the same floor plans. Although the designs had to be repeated a number of times, each house is individual and looks different from the others. The variety in appearance was brought about by different color schemes that were cleverly worked out by the architect. By the use of metal door bucks and metal windows, wood trim for these openings were omitted at a considerable saving.



To Left: A Different Exterior for the \$6,450 Home.

Below: The Dining Room Is 11 by 15 Feet, Cross Lighted.



Newland C. Prior, vice-president, looks after the advertising activities of the company. His explanation of how the use of sign boards has been developed to carry an actual sales message rather than the conventional identifying markers, is interesting.

"We spend a considerable amount of money throughout the year for newspaper advertising space, in addition to direct-by-mail literature, but we feel that a good deal of the effectiveness of our campaign would be nullified, if we made no provisions for a liberal use of painted sign boards on the property as a visual tie-up with the rest of the campaign at the actual point of sale.

"In our studies of the usual methods of the competitors in our field, we found an established tendency simply to erect signs for the sake of carrying the name of the property. We felt, however, that in our case this valuable space would be wasted unless the boards were designed to carry a definite sales message to the passing public as well as to visiting prospects. As a result, we found it necessary to change our outdoor message at regular intervals in order to keep up with changes in merchandising plans.

To Left: A Different Exterior for the \$6,450 Home.

Below: The Dining Room Is 11 by 15 Feet, Cross Lighted.

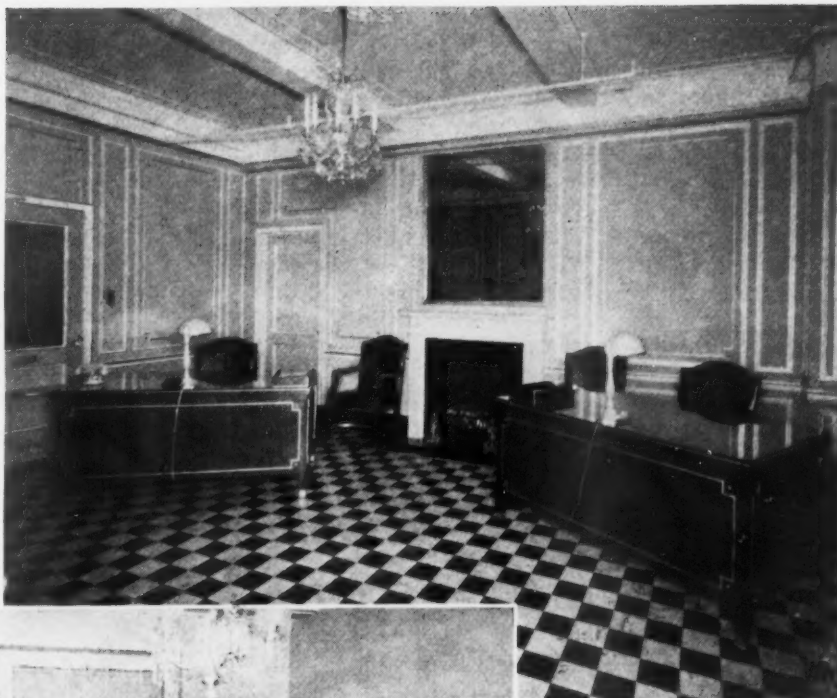
"For instance, until a certain time, we were concentrating on a group of homes at a definite price and, in our newspaper advertising, playing up the terms with emphasis. So we arranged to have our boards designed along the same lines. Some time later, we began a model home campaign in which our advertising featured a completely furnished home. Our boards were changed to carry the same message. Next, we built an entirely new series of Old English homes at a still different price from the first group, and simultaneously with the first newspaper announcements, our displays were repainted with the newest selling message."

An extensive advertising program of circulars, pamphlets, broadsides, sign-boards, newspaper ads, etc., was prepared by United Service Advertising, Newark, N. J. When the development first opened, full page copy was used in a number of leading New York and New Jersey newspapers. Since then, smaller space has been consistently used. Space was frequently taken in the Sunday rotogravure sections.

The houses were constructed entirely by union labor under the five day

To Right: Homeseekers' Consulting and Sales Room.

Below: Entrance to Reis Offices in Patio Style.



Dignified Home Offices of Charles H. Reis, Inc., Hackensack, N. J.

week schedule which prevails in New Jersey. Efficient methods of working and a strict schedule of work was followed so costs were cut to the minimum.

The houses were sold on the easy payment plan. In the case of the house type illustrated by complete plans in this article, the selling price was \$6,450, and sold with a down payment of \$550, leaving \$5,900 to be financed.

The first thing was to secure a \$4,000 loan on each house from a title mortgage company; this bearing interest at 6 per cent semi-annually. The mortgage is due in three years, but can be renewed with the same company at a nominal fee.

The balance of \$1,900 was financed through a second-mortgage company, operated by the developers. They take back a three year mortgage payable monthly at the rate of 6 per cent of the unpaid balance, plus \$19 to apply against the principal of the second mortgage. The owners have the privilege of making additional payments on the principal from time to time as they are able; and the experience is that most are able and do make such extra payments, so as to more quickly lighten their interest burden.

When the three year period expires, the second mortgage has been reduced to \$1,216, or possibly less because of



the extra payments. The owner of the property is then assisted in securing a building loan mortgage to take up both the first and second mortgages.

The importance of attractive sales offices is well understood by this organization. Taking over a large portion of the sixth floor of the Peoples Trust Building in Hackensack, Charles H. Reis, Inc., have converted the space into a distinctive suite of offices embodying several varieties of attractive architecture and decoration.

Leaving the elevators and opening the front doors of the Reis offices, the visitor steps from the matter-of-fact, business-like corridor into a lobby treated in Span-

ish style, its trellis and beams representing a pergola courtyard or patio, all of which is supposed to help to put the visitor into a receptive frame of mind for considering a home buying proposition.

Now that Sunshine City is finished and sold out, Mr. Reis and his associate, Mr. Prior, are launching their new development, "Allwood."

"It isn't merely a matter of courage to go into a job like this in times like these," Mr. Prior said. "It is a realization that many people need homes and that many people have money in the bank, hoarding it against some unknown calamity. Well, the calamity isn't coming; and they can be easily convinced it isn't when they

"America's Greatest Home Value"

Demand so Great
We Announce 6 Months in Advance

the **Opening**
of **Section 6**
with the **1930**
model
"house of wonders"

Old English Homes
Brick, Stucco
and Frame
\$6450

SUNSHINE CITY
WOOD-RIDGE, N. J.
Overlooking Times Square

Beautifully Decorated Homes That Everyone Can Afford
in the Restricted Park Section of

SKILLFUL designers and expert modern decorators have brought their finest creations into the 1930 Model "House of Wonders," with results so charming and artistic that it will thrill you to walk from room to room, gathering in each lovely detail with your eye.

This is our way of celebrating the opening of Section Six. Five entire sections of Sunshine City are already completely sold out. Here, in the largest community so close to Times Square, over 950 homes are occupied by a population of almost 4,000 people. Within the limits of SUNSHINE CITY are two shopping centers and over three miles of paved streets. In fact, \$15,000,000 have thus far been spent in improvements. To care for the increased population, a new addition is being erected to the school in Sunshine City, while the Public Service not only maintains bus lines running through all North and South streets, but even runs buses through Sunshine City to meet all trains at the nearby Erie Station.

Copies of \$20,000
Homes of Nationally
Advertised Products

It is admitted by building experts that these homes cannot be duplicated elsewhere at less than \$2,000 above this price. Sunshine City makes this value possible only through its huge building program and tremendous financial resources. The fifty new homes now being built in section six are the last homes of this type. Each is built on a larger plot than any other homes in Sunshine City. Each captures a deeper view-back from the street line. Once completed and sold, your opportunity will be gone forever. Why wait and be disappointed? Never will you have a chance like this again. See the whole thing—visit SUNSHINE CITY this week-end!

Write for Booklet

CHARLES H. REIS, Inc.
SUNSHINE CITY, WOOD-RIDGE
Bergen County, N. J. Phone Rutherford 4500
Follow Arrows to Office two blocks west of Hackensack Street. Open daily, Sundays and Holidays Until 10 P. M.

Read This Saving Plan
\$550 CASH
Secures Deed

CARRYING CHARGES

Interest on \$5,500	\$25.50
Taxes	7.50
Payment to Reduce Mortgage	15.00
Fire Insurance	.50
Total Monthly Outlay	\$48.50
You Save Each Month	15.00
Monthly Rent	\$33.50
(This Rent is Reduced Each Month)	

*This item is paid by us for your 12th.

On Plots 40 x 140

5 Old English Designs



Newland C. Prior,
Vice-President, Charles
H. Reis, Inc.

Such Advertisements as This Appearing in the Newspapers and also Used for Direct Mailing Attract Prospects Because of the Definite Information Given in an Inviting Way.



One of the Streets in the Sunshine City Development Completely Built Up by Charles H. Reis, Inc. A variety of exteriors were fashioned from the same plan.

are offered something they want and need. Builders generally must recognize that to sell houses in this buyer's market, they must offer something of superlative value, something that will fill a definite need, will be a source of unending pride, at a price within the reach of the great majority."

"The small wage-earner," Mr. Prior continued, "is entitled to sunshine and trees and lawn and open spaces, and because the house he buys is inexpensive is no reason why it shouldn't contain a dollar of value for every dollar of the purchasing price. Give the prospective home-buyer an accessible location, a sound house of artistic merit in an attractive setting, and no salesmanship is needed to convince him.

"Everyone has been talking about depression. Lots of theories have been advanced. Everyone knows what to do about it. The big point is that while many have been talking, few have done anything. We're not afraid of depressed business conditions, because we believe with

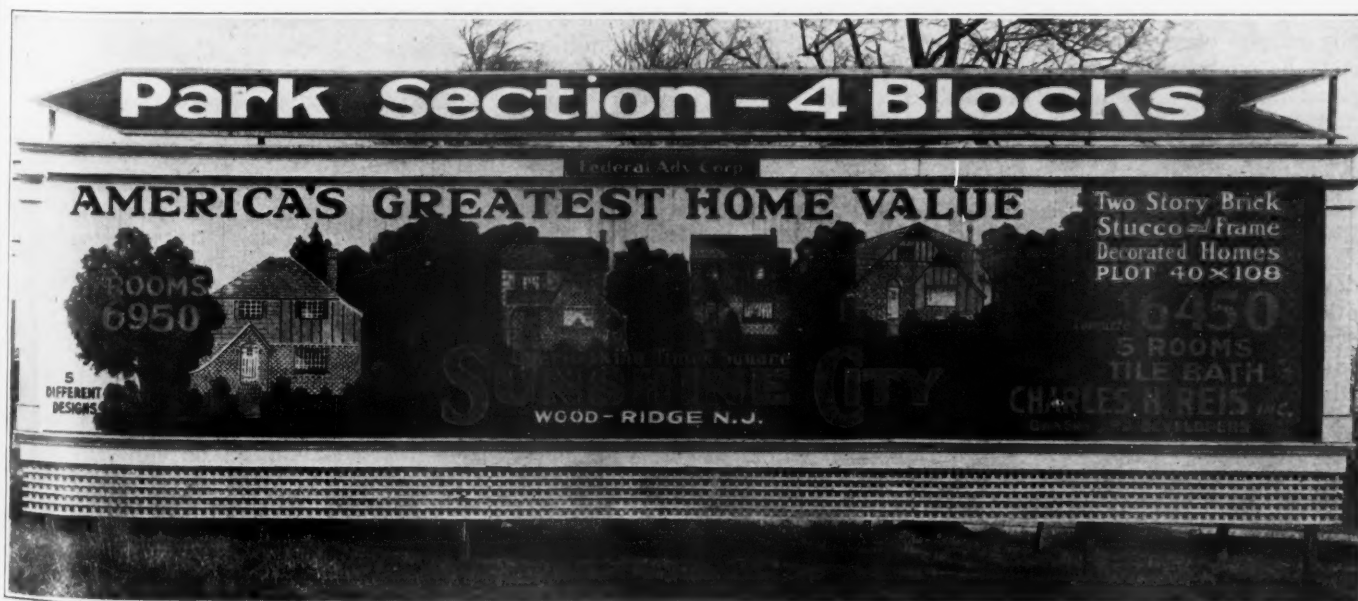
Calvin Coolidge that the situation now is merely psychological, and that what the nation needs is more faith and courage."

Referring again to the selling methods which proved so successful with Sunshine City homes, Mr. Prior said.

"In addition to property bulletins, we maintained a considerable number of large displays at various strategic points approaching Sunshine City. Some of these are a number of miles distant from the property and yet we find in our check-up that visitors remember seeing these displays while driving to a totally different destination.

"By using painted bulletins to carry both 'reminder' and 'selling' copy, we find after a number of years of consistent use that our investment in outdoor advertising more than justifies itself.

"Painted bulletins that serve not merely as identification for our property, but combine actual selling value as well, have always been an important link in the Sunshine City advertising campaign."



Painted Sign Boards on the Property and Elsewhere Produced Splendid Results.

*Machine Welds
Steel Floor Plates,
Propelling and
Guiding Itself.*



Automatic Welding

for Steel Floor Construction

By LEE H. MILLER

Chief-Engineer, American Institute
of Steel Construction

For building construction the floor can be made of small I beams 3", 4" or 5" in depth, spaced approximately 24" apart, and supporting steel plates which have their edges over the center line of the beam. For anything except extremely heavy loads, $\frac{3}{16}$ " or $\frac{1}{4}$ " plates 24" wide are sufficient to meet building requirements.

Automatic welding equipment has been devised that will travel along the seam between the edges of the plates and weld them together and at the same time weld them to the top flange of the beam over the center line of the web. The result will be a built up T section with the plates acting as the upper flange and the beam acting as the vertical part of the T. The neutral axis of the T section will be close to the top flange of the beam, and when the flange of the beam is stressed to 18,000 pounds per square inch the plates and top flange will have a stress of only 3,000 to 4,000 pounds per square inch. The weld being immediately over the center line of the beam, provides a connection that is at the theoretically most efficient position.

By using a 3" 5-7/10-pound I beam spaced 24" centers, and a $\frac{3}{16}$ " plate, such a floor construction will carry a total load of 190 pounds per square foot, on a 10-foot span with a deflection of .104". The same floor will carry a total load of 85 pounds per square foot on a 15-foot span with a deflection of .235".

The weight of the steel work including the beams and plates for this floor, will be 10½ pounds per square foot.

By a proper variation in the size of the beam and the space between them, together with the thickness of the plates, it is possible to develop a floor to meet almost any condition of loading with a dead load saving of from 25% to 50% of present construction.

It is assumed that this combination construction will be made continuous over the tops of the supporting girders flush on the top and having the plates continuous.

Inasmuch as any interior floor panel of a building is completely surrounded by the other floor panels, it is obvious that the calculations for the stresses in such panels can be properly based on the fact that the ends are fixed.

By the use of the flame cutting torch or the electric arc it is possible, at a very low labor cost, to frame this floor system into irregular panels more efficiently than any other type of floor now used.

So much progress has already been made in the art of arc welding that there should be no difficulty in developing automatic machinery to take care of this floor system. In fact different manufacturers of welding equipment have already put on the market automatic traveling equipment that will weld the seam at the rate of approximately 90 feet per hour, and at a cost estimated to be approximately 3c per linear foot. These welding costs, however, are dependent on the conditions con-

PROBABLY no part of a building structure under present conditions has been more unsatisfactorily developed than the floor panel construction, and yet it is the one reason for having a building. Present methods of construction involve the use of materials in the floor panels which constitute a dead load that generally weighs considerably more than the live load which is to be supported. This excessive weight of the floor panel must be carried into the skeleton frame, girders and columns, and ultimately to the foundation. It is therefore evident that one of the conditions which limits the height of multiple story buildings will be the capacity of the foundations to carry the dead load of the structure, which is greater than the calculated live load.

By the use of steel plates and beams it is possible to develop a welded steel floor that will be better than any other floor that has been used before, and will stand every service to which the floor may be subjected. It will be a floor in which it is possible to determine in advance the stresses in all parts of a floor which will recover 100% of its deflection due to live loads when those loads are removed.

Usually the first objection that is made to this type of floor is that it has not been used before, and is therefore without precedent. This objection, however, is not true since steel plate floors have been used for the charging floors of open hearth furnaces and for the decks of battleships, which are subjected to the most severe service that is known.

nected with the operation itself.

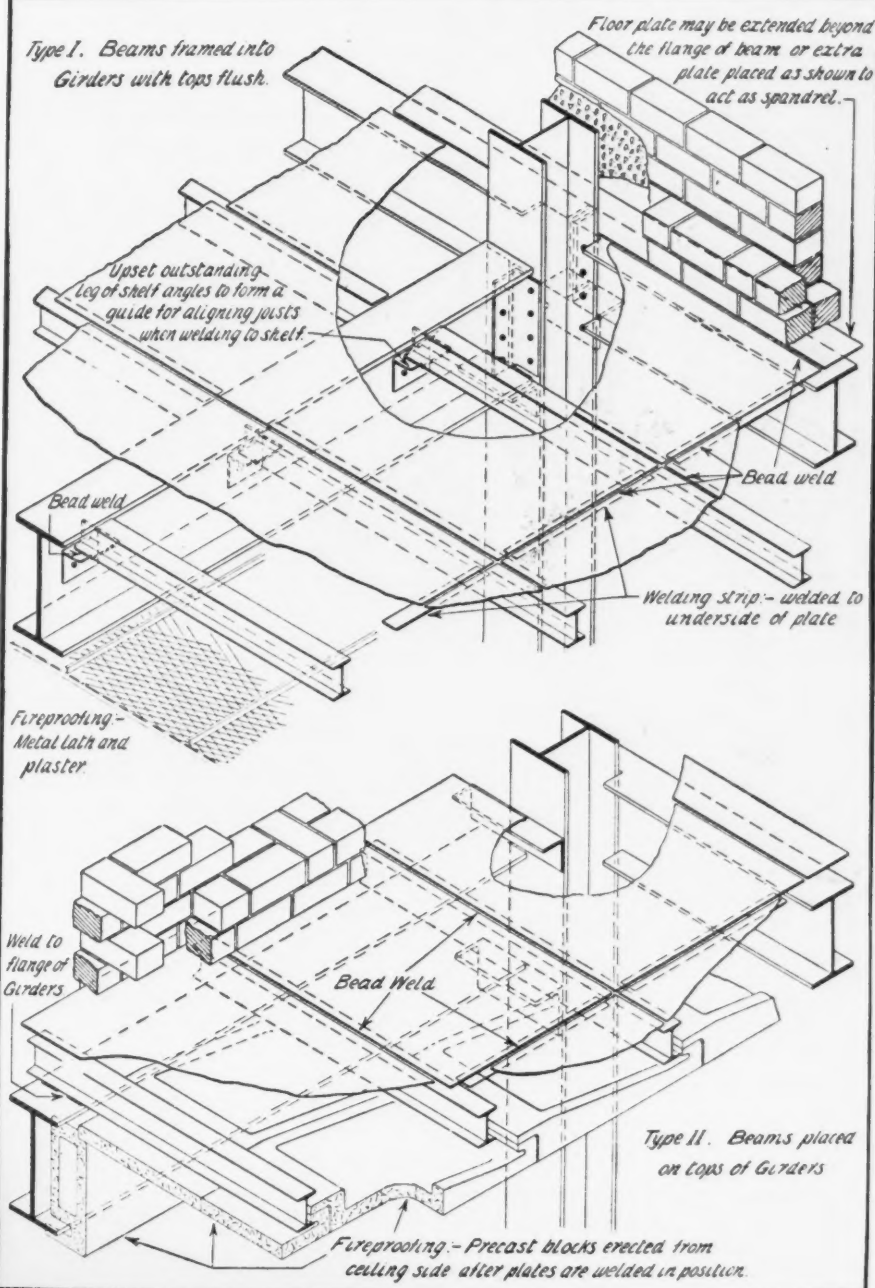
In construction it will be found necessary to weld the bottom flange of the I beam to the shelf angle on the main girder in order to provide continuity or a fixed end bending moment.

The actual amount of welding necessary to develop the strength of the T section is only about 25% to 40% of the length of the seam, but it will undoubtedly be more economical and satisfactory to make welding continuous rather than attempt to develop the strength with the minimum amount of welding.

The floor construction itself generates a solid steel deck which will act as a girder to prevent any twisting distortion to the building when subjected to wind or earthquake. It will enable the engineer to select that part of the structure which is to carry the wind stresses to the foundations, and be assured that the deck flooring will deliver the stresses to the most rigid part of the vertical frame. The floor construction can be carried out into the walls to provide spandrel construction to support the outside walls. It will provide a working floor for other trades and in many places eliminate the necessity of temporary planked floors.

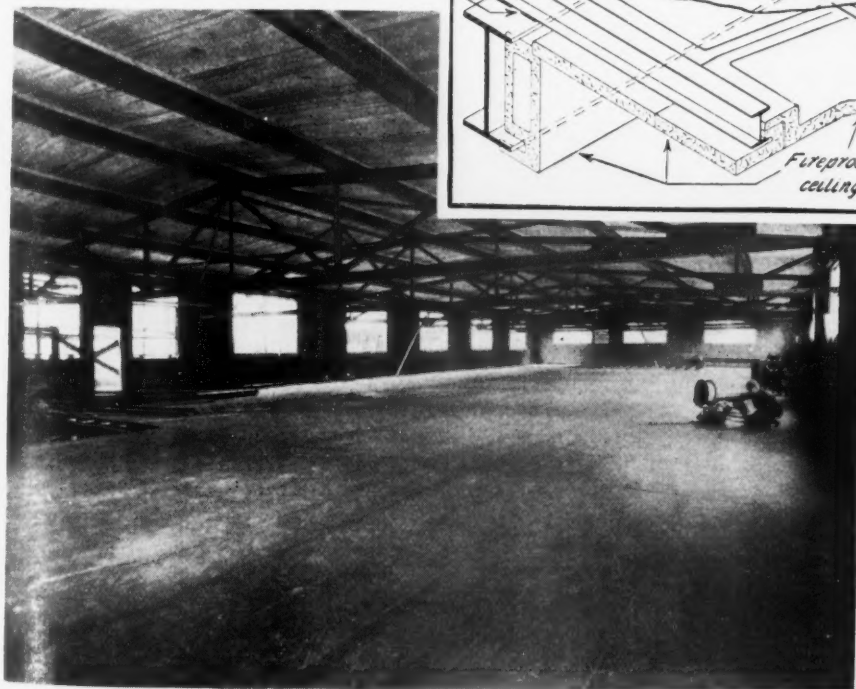
It will, of course, be necessary to fireproof such floors when the combustible contents may generate a heat that will produce a temperature in the steel in excess of 1,000° F. This fire protection can be taken care of either by metal lath and

BATTLEDECK STEEL FLOOR CONSTRUCTION

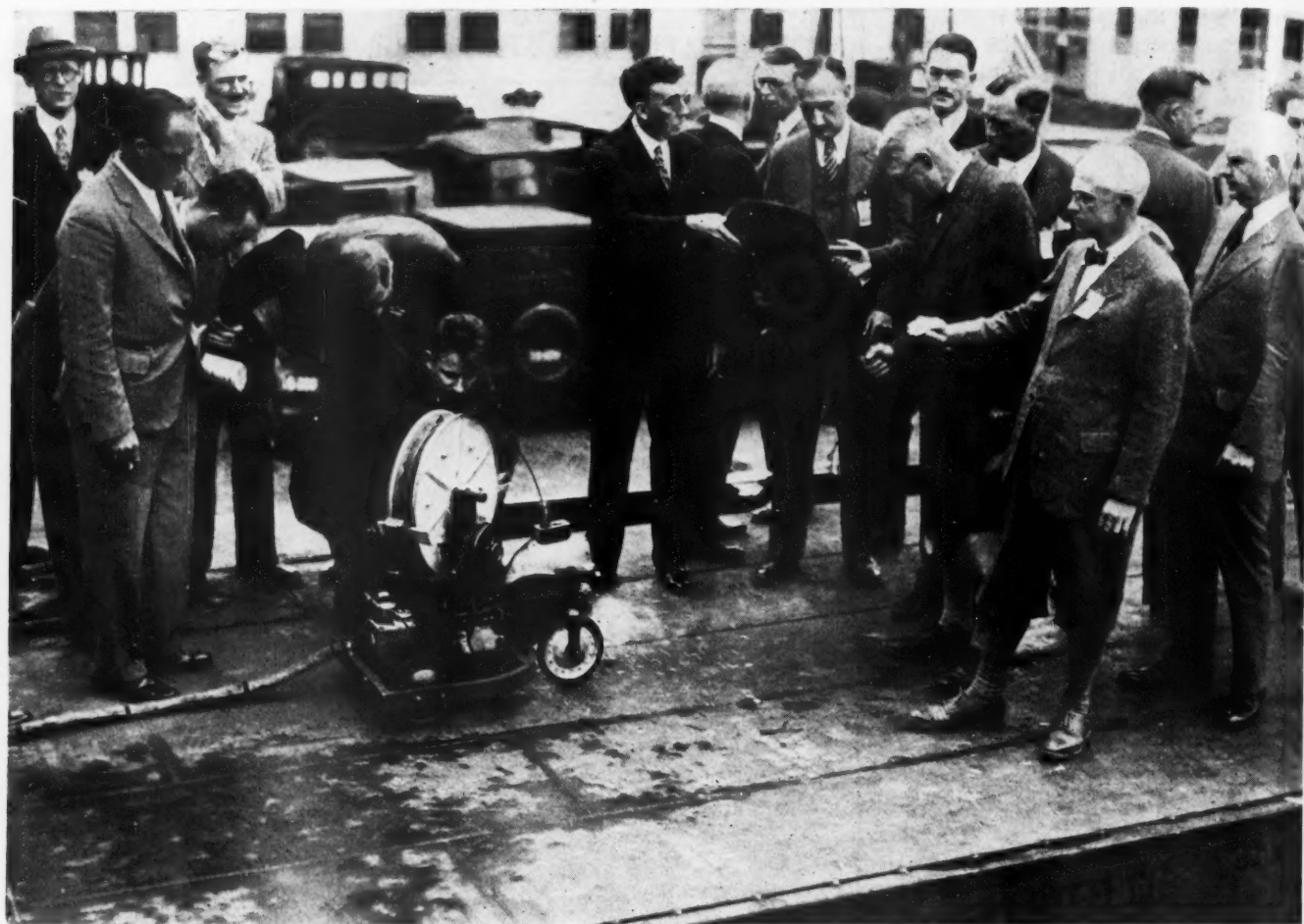


Details of Steel Construction of Battledeck Floors.

plaster, or by precast blocks of fireproofing inserted or suspended on the lower flange of the small beams. Either type can be erected after the welding is completed, and there will be provided openings for conduits which may be carried along the main girders and transversely under the steel plates between the small beams. On the other hand, if it is advisable to do so, it will be possible to lay all of the conduits on the top of the steel plates, and have them covered with a light weight fill, which will also act as a top fireproofing in case it should be required.



Battle Deck Steel Floor in the Berkshire Garage, Pittsfield, Mass., Being Electrically Welded.



Delegates of the American Institute of Steel Construction Greatly Interested in Automatic Electric Welder.

It is possible to provide any form of treatment for the top surface of these steel plates, either mastic finish, linoleum, cork tile or other forms of covering. A manufacturer of cork tile has stated that they recently took a contract for covering approximately 40,000 square feet of floor in the Cleveland Terminal Tower Building, at a price of approximately 42¢ a square foot. Such floors can be laid with a mosaic pattern in various shades of brown, and eliminates the necessity of rugs, except as ornaments. The total cost of a floor constructed of 3" I beams and $\frac{3}{16}$ " plates covered with cork tile and fire-proofed on the under side will be a little more than \$1.00 per square foot. It should be remembered in this connection that the cork tile floor eliminates the necessity of any other floor covering, which is always a part of the tenant's expense when using an ordinary masonry floor. The cost of a good Chenille rug is from \$1.25 to \$1.50 per square foot and the above referred to floor system will cost complete, less than the carpet, and eliminate its necessity.

Some of the large department stores of the country have found that the dusting which takes place in ordinary masonry floors has a very serious effect on their delicate fabrics, and in one instance a large department store has installed steel checker plate floors without any covering whatever, and these floors are accepted by the building department as fireproof.

The floor for the addition to the Library of Congress at Washington is designed of steel plates bolted to angles and channels with $\frac{1}{2}$ " of cork tile floor on its top surface. I have been advised that the floor will be installed by welding instead of bolting. Here is a struc-

ture requiring both quietness and fire resistance.

Work is now being completed on the Berkshire Garage at Pittsfield, Mass., which contains one of the largest areas of battledeck floor so far constructed since this particular system was first advocated by the American Institute of Steel Construction. Lighter, stronger, safer and more efficient and economical buildings are assured by this floor. The building is being erected for the Berkshire Auto Company of Pittsfield from plans by George E. Haynes, architect. The structural steel was fabricated, erected and welded by the Haarmann Steel Company of Holyoke, Mass.

One of the photographs shows the automatic machine welding the steel plates to the beams. There are approximately 8,500 square feet in this floor and there will be no covering on the steel plates. The floor consists of steel plates $\frac{1}{4}$ inch thick and 24 inches wide, welded to 5-inch I-beams. The average span is 20 feet. The safe maximum uniform distributed load is 135 pounds per square foot, the floor itself weighing 15.2 pounds per square foot.

From the standpoint of the welding equipment manufacturers and engineers, this type of floor construction offers an excellent means of promoting the general introduction of the art of welding for construction purposes. Whether we recognize it or not, there has been a very definite antagonism on the part of many engineers against the use of welded connections, but this floor system uses welding only for the development of the secondary stresses in floor panels, and provides an outlet for welding equipment and application on a scale so much greater than exists in welding the frame.

Mail Order Competition Favors Independent Business

By PHILIP LIEBER,
Building and Loan Executive

SPEAKING before the 38th Annual Convention of the United States Building and Loan League, held at Grand Rapids, Michigan, July 28 to 31, Philip Lieber, of Shreveport, Louisiana, pointed out some hopeful features of the so-called "new competition" of the mail order companies in the building field. He said, in part:

"In determining to enter the residence construction and financing business on the large scale contemplated, I believe that the mail order concerns have done independent business a big favor, . . . combining in constructive defense the various business and labor interests which have been forced to make common cause.

"In the universal knowledge that the facilities all over the nation, with hardly an exception, have been and are at the present time more than adequate for the construction and financing of homes, and the equal knowledge that, in the greater part of the country, construction has caught up with the demand, it has not taken long for labor, the lumber and building material interests, the builders and contractors, and the building and loan associations to realize that the well known propensity of these catalog and chain concerns to push aside and replace existing sources of these services, rather than to offer supplementary service, alone actuated their entrance into this field.

"These local interests are making common defense against the attempted inroads and in this unity of interests and alliance of preventive means lies our greatest weapon against the new competition.

"There has been an increasing number of general and technical articles in various business and general magazines bawling the hopeless inadequacy of the long term home financing facilities in this country. . . . It makes one's blood boil to read articles that claim originality for installment methods of purchasing non-essentials and then say that no similar method exists for homes when the entire scheme of installment selling has been founded on the lesson of the building and loan association, developed over a period of nearly one hundred years.

"The mail order plan, in its financial aspect, as published, provides for loans to be made up to 75 per cent of the value of the land and the building, and will be for a normal term of 15 years at six per cent interest. No commission will be charged in making the loan and interest will be reduced monthly. But a collection charge of one per cent will be made against that portion of the total which is used to purchase building materials, but this will be rebated if the loan is paid before the 15 years are up. Loans will be repaid at \$8.44 per month, per thousand dollars, and the total paid in 15 years, per thousand, is \$1,519.00. If the loan were figured on the



Philip Lieber, of
Shreveport, La.

usual six per cent basis, the total would be \$1,900.00.' This is copied verbatim from a publicity article released by one of the mail order houses in April, 1930.

"Now any building and loan association charging six per cent interest, can collect \$8.44 per month and repay a loan of \$1,000.00 in exactly 15 years. The interest tables show this. And the total of 180 payments at \$8.44 is \$1,519.20. The building and loan association, in giving publicity to this system would not say that a usual six per cent loan would amount to \$1,900.00, because it wouldn't. No six per cent loan of \$1,000.00, payable monthly for 15 years, would amount to \$1,900.00."

In the discussion following Mr. Lieber's speech it was pointed out that the mail order terms commonly include a bonus, similar to the one per cent collection charge quoted by Mr. Lieber, which increases the actual interest to a considerable degree over the six per cent advertised. One such contract contains the following:

"An amount equal to 15 per cent of the delivered price of the materials ordered will be included in the total loan to cover the expense we are caused in handling the transaction, such as title expense, examining title papers, recording mortgages, mortgage tax and carrying the account for 15 years."

Continuing, Mr. Lieber said:

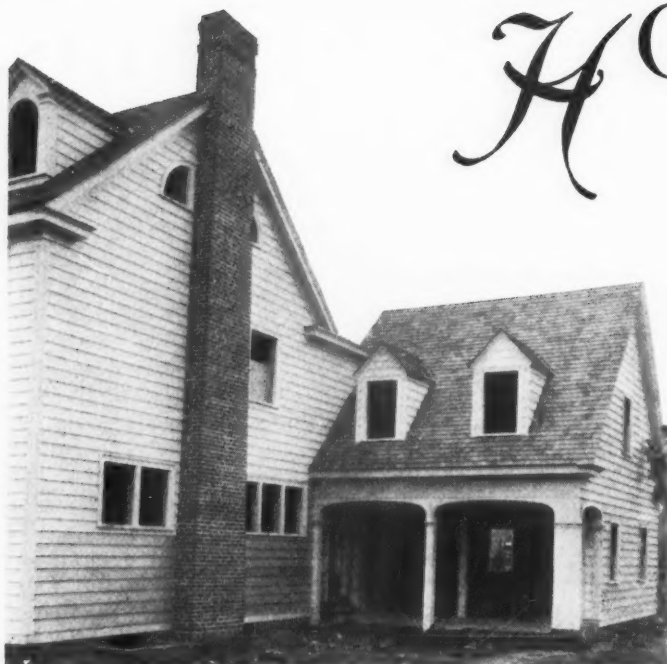
"There isn't a thing in this offer by the outside competition that any building and loan association can not meet and beat, only we are going to have to counteract publicity with publicity."

One of the mail order companies recently offered, to residents of a certain city, houses built from their stock plans, by their workmen, of their materials, at certain prices. The independent contractors of the city secured the plans and specifications and offered in local newspapers advertisements to duplicate any of these houses for from 10 to 25 per cent less money.

It has been proved that the independent contractor can build from the same plans and specifications at as low or at lower cost than the price offered by the mail order concern using their own plans, workmen and materials. Talking on this subject of economy and service, Mr. Lieber said:

"In the assistance we can render prospective home owners in the selection of the home site, in the plans, in the legal work, in the supervision, in the contact with the builder, in the low cost of financing, and in the resultant service . . . the local building and loan association can make a place for itself in any progressive community that no outside concern can usurp.

"Catalog competition gives us an opportunity to tell our people of the great work we have been doing; it has already allied with us every element of the great building industries."



HOW to Prevent Paint Scaling

Priming Coats of Aluminum Score High in Tests

By W. B. ROBERTS
Chemical Engineer

Aluminum mill-primed siding was used on this residence. Note even spread on walls partially covered with first coat of white paint.

ARCHITECTS, builders and dealers are acquiring new ideas about the painting of exposed wood surfaces. Paint manufacturers have impressed them with the importance of proper priming, lumber manufacturers are teaching the benefits that come from moisture-proof priming coats, and one producer of siding and ceiling sells mill-primed material shipped out with a light-weight moisture-blocking prime coat already applied. Each carload of this silver lumber serves to advertise the newly recognized importance of scientific priming.

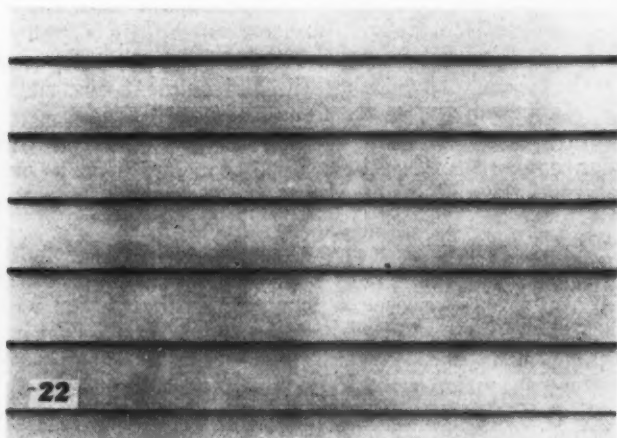
Most of those who have studied the development of modern wood-priming practice believe that the secret of superior paint service lies mainly in the ability of the paint both to prevent rapid moisture changes in the wood, and to withstand the action of ultra-violet and other ordinarily harmful rays of the sun. Unless a paint guards against these two dangers, it is very apt to fail after a comparatively short period of service.

Cell Structure of Wood

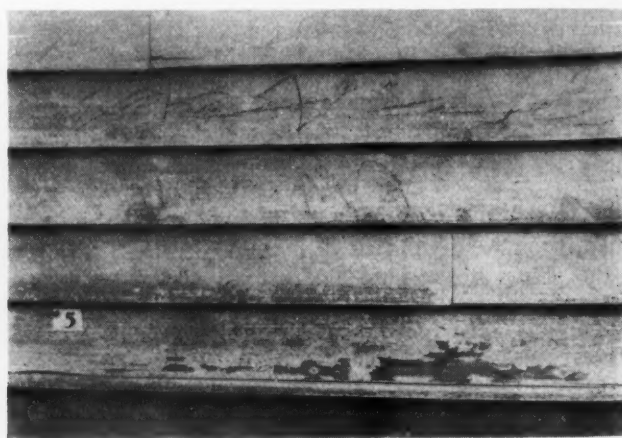
In order to picture the features involved in paint failures, the composition of wood and some of its principal characteristics must first be considered.

Due to its cellular structure, wood possesses considerable ability to absorb and hold moisture. Wood cells form fibers which are minute tubes arranged usually in vertical bundles. The cells are very small indeed; in soft woods their average diameter is about one-thousandth of an inch. Their size, the thickness of their walls, and the method of their distribution throughout the tree vary greatly, due to the nature of the growth of trees. Cells formed during the spring of the year have thin walls and large cell cavities; those formed during the summer are just the reverse with thick walls and small cell cavities. In a log, the growth rings made by these seasonal changes in cell structure are familiar to schoolboy and scientist alike.

The painter keeps his eye on the distribution of summer wood because it markedly affects the painting characteristics of different species of lumber. It is a common observation that the usual paint coating fails more quickly over summer wood than over spring wood. This may be explained by the fact that paint which has gone beyond a certain stage of oxidation clings to wood mechanically, its particles having been imbedded in the minute irregularities of a planed wood surface, and not by anchor-



Two Coats of Aluminum Paint on Poplar Siding After 5½ Years. Excellent condition; no sign of film rupture over knots.



Two Coats of White Paint on Poplar Siding After 5½ Years. Hair checks prevalent; bad scaling and checking near water table.

age to such paint oil as may have penetrated into the cell cavities. The hard and close grain of summer wood offers fewer and shallower depressions than does the relatively soft, loosely fibrous, spring wood. In addition the thicker cell walls of summer wood expand and contract more violently as moisture is absorbed or given off; this increase in surface movement naturally dislodges an aged and brittle coating more quickly.

Fallacies in Priming Practice

The microscopic structure of the wood cells and consideration of the properties of the cell wall itself reveal much that leads us away from old and long established priming coat practice. For many years it has been the common practice of painters to apply to new lumber linseed oil priming coats that contain large quantities of turpentine and small amounts of pigment. The object of this thinned-down priming coat was to penetrate deeply into the pores of the wood, effectively sealing them against moisture penetration. In addition, it was thought that unless this deep penetration was secured, the priming coat would show poor adherence. Each type of wood was treated differently, usually by varying the proportion of thinner to oil. This practice is now believed to be fundamentally wrong and perhaps has contributed toward the ultimate failure of top coatings.

The reason that the old method of priming may be questioned lies in the fact that although wood cell walls absorb and pass moisture and certain dilute solutions, they are impervious to oils and resins. A paint oil cannot penetrate the cell wall, but must seek the minute slit-like openings that occur in the cell wall. Once through these apertures, it may fill the cell cavity and pass on through other openings into the next cell. The cell walls themselves are left free from penetration or saturation and the hoped-for moisture-proofing has not occurred. Linseed oil remaining on the outer surface of the lumber has an exceedingly low moisture proofing efficiency, and consequently moisture readily penetrates through the surface film of linseed oil, into the wood fibers. The cell walls which have excluded the oil, readily absorb the moisture; it is passed along to other cell walls in contact and so on toward the center of the board.

Moreover, pigments carried by the paint oil are

much too large to pass through the small cell-wall openings and the oil in consequence filters through. This outer layer of pigment, therefore, has been robbed of its binder. Such a primer forms a dry or starved undercoat that adheres poorly, protects feebly and fails generally to form a satisfactory foundation for the top coats that follow. Deep penetration, considered for so long an important requirement of a primer, actually is a filtering process which would appear to be harmful to the coating rather than beneficial.

As has been said, when cell walls absorb moisture, they expand, and as they dry out, they contract. Although a new paint coating has enough elasticity to accommodate this swelling and shrinking of the lumber, an aged or over-oxidized coating suffers. When it can no longer keep pace with the movement of the wood cell walls, its points of anchorage are sheared off, and cracks begin to appear in the paint film. Excessive moisture changes in painted wood usually give their first warnings by failure of the paint over knots, over summer wood, and where faulty building construction has permitted the entrance of moisture behind the paint film.

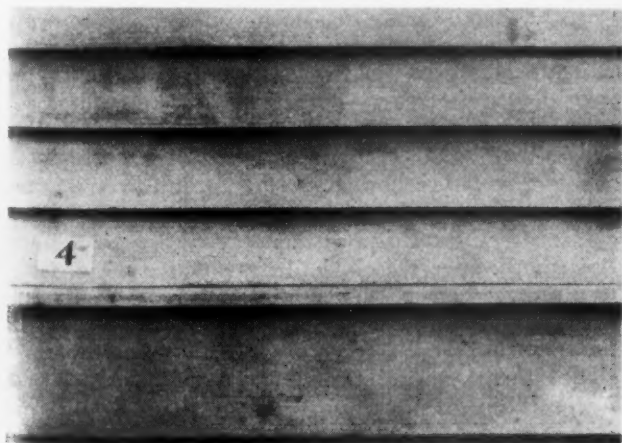
Perhaps the chief cause of failure comes from the destructive oxidization of the film by ultra-violet and other actinic rays of the sun, aided by the oxygen in the air. This results in a loss of elasticity, evidenced by cracking and checking and general disruption of the paint film.

Other deteriorating influences, such as bleeding through of water soluble saps, stains and resins, may lead to the premature necessity for repainting. Under certain conditions, excessive moisture in the painted wood condenses directly beneath the paint film and in cold weather may freeze, damaging paint and wood simultaneously.

Duties of a Prime Coat

Not all, but most of these causes of failure could be overcome by a primer or first coat possessing certain qualities. The ideal primer might well be described as follows:

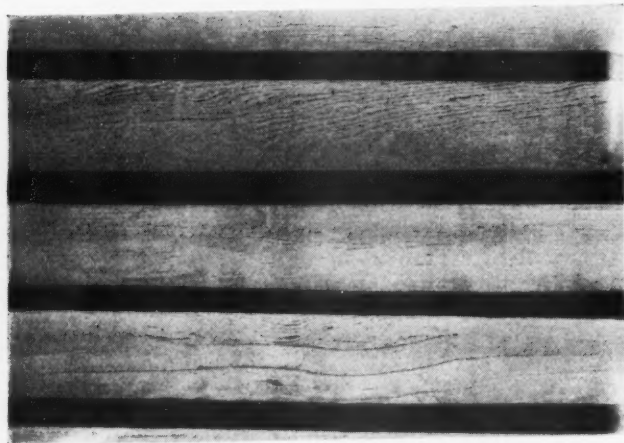
- (1) Its moisture proofing efficiency should be maintained high enough to prevent rapid moisture changes for a long period.
- (2) It should be unaffected by the action of sun-



Prime Coat of Aluminum and One Coat of White Paint After 5½ Years. Very good condition; no breaks at water table.



One Coat of Aluminum Paint After 3½ Years on Rough Lumber. Excellent condition; with no visible failure over knots.



A Single Coat of Aluminum Paint on Short Leaf Southern Yellow Pine After 7 Years. Considerable protection to the wood is still afforded.

light maintaining a high degree of elasticity indefinitely.

(3) It should show a high degree of adherence, uniformly over both spring and summer wood.

(4) It should show good adherence over knots and resin pockets.

(5) It should prevent the bleeding through of water soluble stains and resins.

(6) It should have sufficient tooth to give good adherence to top coats of paint.

(7) It should dry to a film that while elastic enough to withstand reduced changes in the wood surface, would not be so soft as to cause checking of harder drying top coats of paint.

Moisture-proof Priming

A number of these requirements hinge on moisture-proofing power, and it is an interesting fact that from intensive research by The United States Forest Products Laboratory and from numerous exposure tests as well as practical applications, the conclusion has been reached that for wood surfaces, one may measure the service of a paint by its water-proofing capacity. The following table, based on careful laboratory tests, shows to what degree moisture is excluded by various paints suitable for outdoor use.

Coating	Moisture Entering Wood (%)	Water- proofing Efficiency Rating
Wood with no coating.....	100	00
Linseed Oil (Three Coats).....	82	18
Spar Varnish (Three Coats).....	40	60
Graphite Paint (Three Coats).....	39	61
White Lead Oil Paint (Three Coats).....	30	70
Lead-Zinc, Inert Pigment, Oil Paint (Three Coats)	30	70
Asphalt Paint (Three Coats).....	10	90
Aluminum Powder in Spar Varnish (Three Coats)	6	94

It will be noted that aluminum powder mixed with a spar varnish, or in other words, aluminum paint, is given the highest moisture-proofing rating. With this valuable characteristic, aluminum paint naturally appealed to many investigators as promising material with which to improve priming coat practice. Following preliminary tests, various laboratories were encouraged to undertake thorough investigation, and technical activities were soon accomplished by widespread practical use.

Exposure panels, prepared with various primers

under ordinary house paints, were installed in 1925 by Forest Products Laboratory at certain stations selected throughout the country to secure a variety of climatic conditions. A five-year test has shown that aluminum paint effects a significant improvement in priming practice. The coating of paint is kept intact longer, and the wood is better protected against weathering. The improvement is especially marked on woods containing much summer wood. Interest in the performance of aluminum paint on wood has quite naturally been shown by lumber associations and companies. A number of lumber manufacturers have sponsored or executed careful exposure test programs. Aluminum Research Laboratories of Aluminum Company of America have made an intensive study of the behavior of aluminum paint not only as a primer but for other special duties in the building, railway, oil, chemical and general industrial fields. The results obtained in all cases have been very favorable to aluminum paint.

Moisture-proof Primers in Service

Among the first instances of the actual use of aluminum primer was its employment by Aluminum Company of America, on several hundred frame houses located near company plants in Tennessee, Arkansas, Pennsylvania and northern New York. Since these homes were mostly owned and maintained by the company, careful records were kept as a matter of routine, including the quantity and quality of paint used on each job, the kind of wood and its surface condition, and other pertinent details. A company's sales product can undergo few more severe tests than its routine use by that company's own maintenance department. Provided, of course, that the test is honest, its impartiality is likely to be bent over backwards a bit by employees not at all reluctant to hand the production and sales departments a new problem to "lick." A prophet without honor in his own country is often a good grade. A prophet regardless. In the case of aluminum paint, however, the verdict has been most favorable. A recent inspection (April, 1930), revealed no checking or peeling on houses painted over five years before with one coat of aluminum and one of white paint. These coats had been applied over old paint in very bad condition. Where no aluminum was used, two coats of white paint had checked and peeled to a marked extent, and will require repainting in the near future. Most of the houses of this group have poplar siding with southern yellow pine trim, all built at the same time and constructed in the same scale of quality. Photographs have been taken of some of these paint jobs showing their condition in a number of typical instances. Typical examples are shown in the accompanying figures.

In a few cases houses in this group were painted with two coats of aluminum, and were observed to be in perfect condition with no breakage over knots.

One building which had received two coats of aluminum when it was completed in 1925, is in a particularly good state. This structure also has poplar siding and southern yellow pine trim.

The illustration on page 80 shows a single coat of aluminum on new short leaf southern yellow pine after seven years. Wood checking has occurred, although the paint is still offering considerable protection to wood. A somewhat similar case is pictured on page 81, which shows the condition of a

single coat of aluminum on creosoted southern yellow pine that had been exposed unpainted for some years before the aluminum was applied. The paint film is still holding in places, although considerable wood checking is in evidence.

Aluminum paint on creosoted wood is exceptional in its performance because it blocks the bleeding through of the creosote, a trouble only too often encountered in general painting experience. The metallic film that checks the outward passage of creosote through the paint, is of similar service in sealing mahogany stain on interior work, and in sealing asphalt paint. Although the principle involved is not new to those who have used aluminum paint as a moisture sealing coat, tests of the paint over creosote or woods containing water soluble stains are interesting to most people because the inhibiting power of the paint is proved to the eye. If moisture and its harmful effects were as immediately and as plainly visible, a valuable priming lesson would have been learned long ago.

Primers in Industrial Atmospheres

In industrial atmospheres aluminum paint has given a good account of itself. A new building of southern yellow pine near Pittsburgh was given one coat of aluminum paint in 1924. While this was in good condition in 1929 a second coat was applied to cover the accumulated grime. Another building, a private garage, was newly primed in 1925 with aluminum paint, but received no top coat until 1928, when it was given a coat of white lead-zinc oxide tinted paint. As yet no failure over any of the numerous knots has become evident.

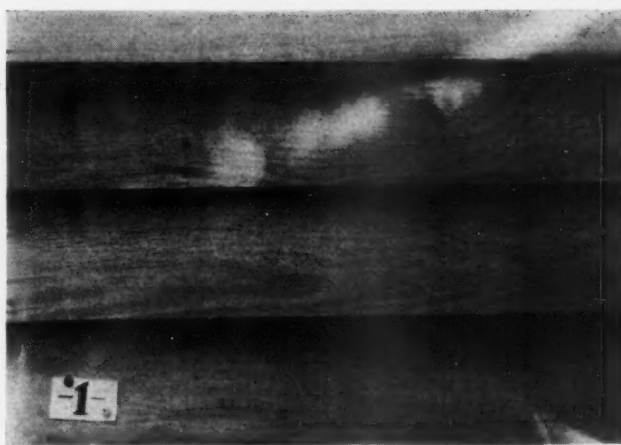
In the same vicinity are three aluminum-primed houses with an assortment of top coats. One received a finish coat of straight aluminum paint, the second was finished with a coat of tinted aluminum, and the third with titanox-zinc oxide paint tinted with about one pound of aluminum powder to the gallon. All three houses are in excellent shape after three years and will need no repainting for several years to come.

Theory and Practice Agree

The favorable results noted in the preceding paragraphs have borne out the findings of laboratory research and panel exposure tests. A paint of high moisture-proofing quality excels as a primer. This quality must be maintained by the paint in service. How much longer a two-year old primer is going to protect depends on its power to exclude moisture, not when the paint was new, but when it is two years old.

If exposure to the rays of the sun, particularly the ultra-violet rays, has set up an accelerated oxidizing process in the vehicle of a pigment paint, one may look for a rapid break-down in the paint film. Intense sunlight spells disintegration to a paint film that is translucent. In aluminum paint the leafed flakes of metal provide protection for the underlying layer of vehicle and pigment, so that sunlight with its destructive power is reflected before it has penetrated the coating. Practical oil men paint their tanks with aluminum to reflect the sunlight and thus save valuable barrels of volatile hydro-carbons. It is as a reflector of actinic rays that aluminum paint maintains its unbroken water-sealing film.

Theory and practice have agreed on the far-reaching benefits of paint that will maintain a seal on



A Single Coat of Aluminum Paint After 7 Years on Creosoted Yellow Pine. Single coats of aluminum often prove surprisingly durable.

wood against moisture, thereby protecting the wood against weathering and thus saving the paint film from forcible dislodgment from the wood surface. Such an improvement in priming practice is a fundamental betterment in the art of wood preservation with paint. Its obvious results will be to increase the service life of lumber and to lessen the cost of its protection.

Future Results Are Promising

Some of the changes in priming practice that are to come may not be foreseen so clearly, but one innovation that may confidently be predicted and that already has passed beyond the period of preliminary trial, is the priming of lumber at the mill. Analogous to the painting of structural steel before shipment, such a treatment promises to become standard for high grade lumber within a comparatively short time. Well-designed machinery for the economical application of such a priming coat should find a lumber market ready for its output.

Mill-priming is applied on both sides of the piece of lumber because back-priming is thus accomplished most economically. The advantages of back-priming are obvious and this form of insurance for wood and paint is gaining rapidly in popularity. Whether priming is accomplished mechanically in the mill or by hand on the job, there are many places where this coating should be applied front and back. In dwellings, porch floors should be protected this way. Under hardwood floors indoors, and under any permanent floor surface, a moisture-stop in the form of an efficient priming coat is inexpensive but money-saving. For interior wood-work, built-in features such as china closets, kitchen units and bathroom cabinets, a moisture-proof coating should not be under-valued.

The proper choice of a priming coat on wood rightfully interests builders and manufacturers of paint and of lumber. To each one of these it means increased satisfaction for his customers, and increased business as a result.

"Modern Interior Decoration by the Paint Spray Method," by F. R. Wells, will appear in the October American Builder. Make money this winter working inside. Don't miss this.—The Editors.



Living Room of the Rossiter Holbrook Residence, Illustrated on the Opposite Page. Below: The Living Room Terrace Sheltered by a Sturdy Oak.



Service to Home Builders

Throughout this magazine we present many building designs. A variety of home plans are included, selected from many parts of the United States and designed by various architects of standing.

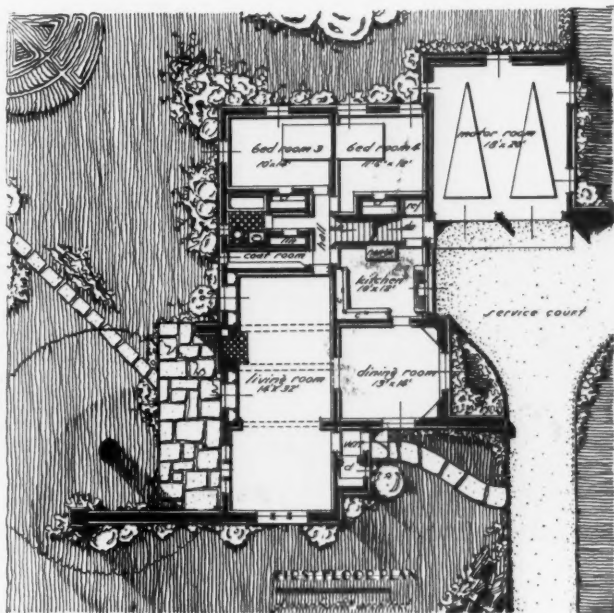
The "American Builder" will gladly serve its readers by bringing them together with these architects if any further information or plans are desired for any of these designs. Address the American Builder Home Planning Service, 105 West Adams Street, Chicago, or 30 Church Street, New York City.



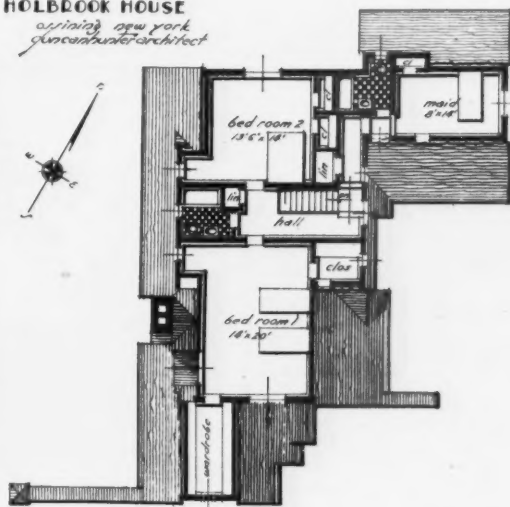
DUNCANHUNTER, Architect, New York City

DESIGNED TO CROWN A KNOLL

A Site Demanding Low Hung, Sweeping Lines Inspired this Modified English Cottage Residence of Rossiter Holbrook, Ossing, N. Y.

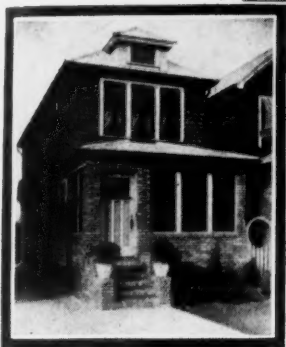
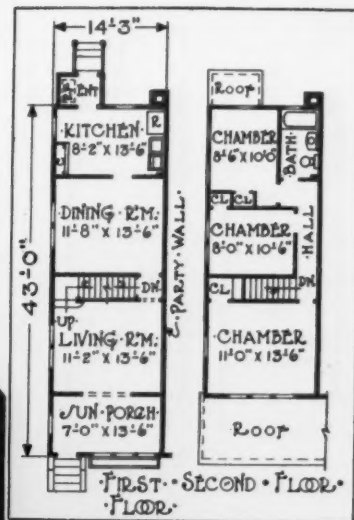
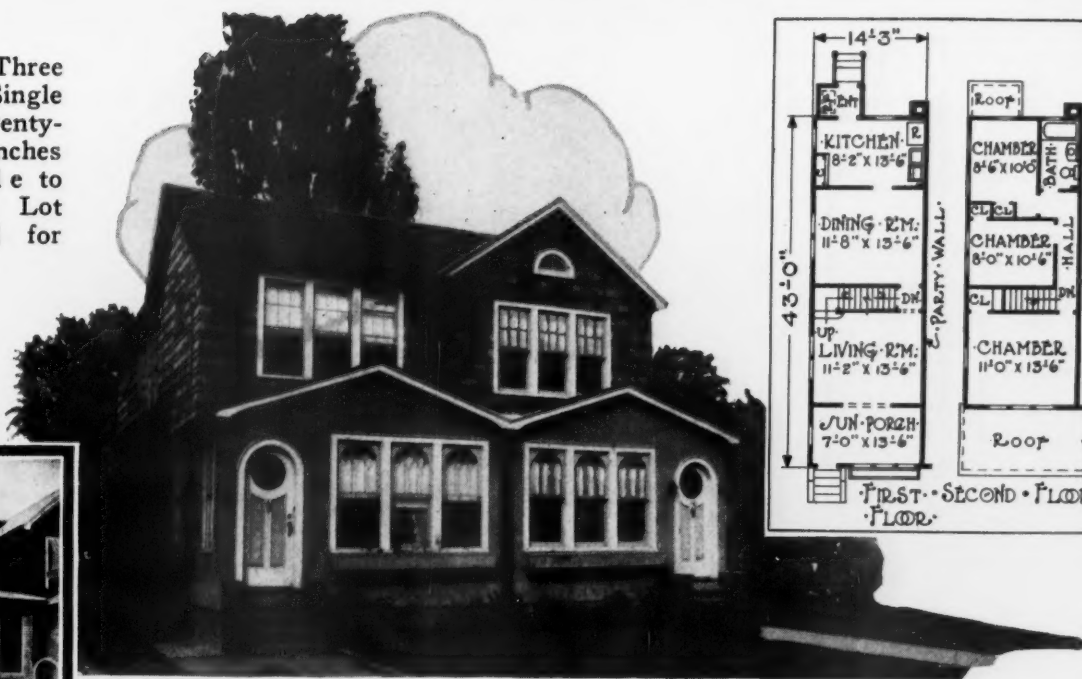


HOLBROOK HOUSE
Ossing, New York
Duncan Hunter Architect

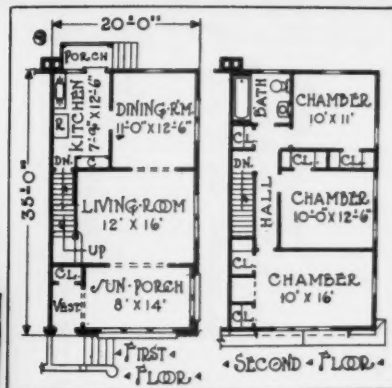
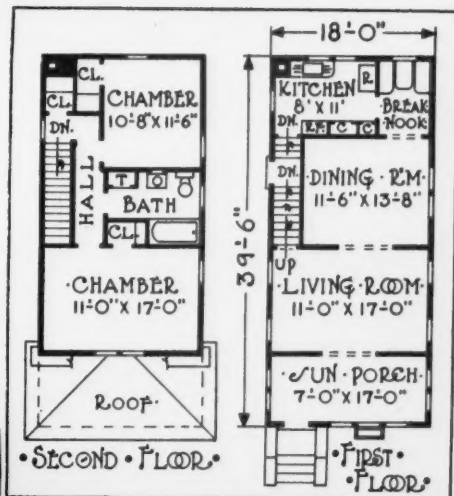


SECOND FLOOR PLAN

Fourteen Feet, Three Inches for the Single Below and Twenty-eight Feet, Six Inches for the Double to Right Are the Lot Widths Needed for This Plan.



14 ft., 3 inch.
18 ft., 0 inch.
20 ft., 0 inch.
— and All
Are Well
Lighted.



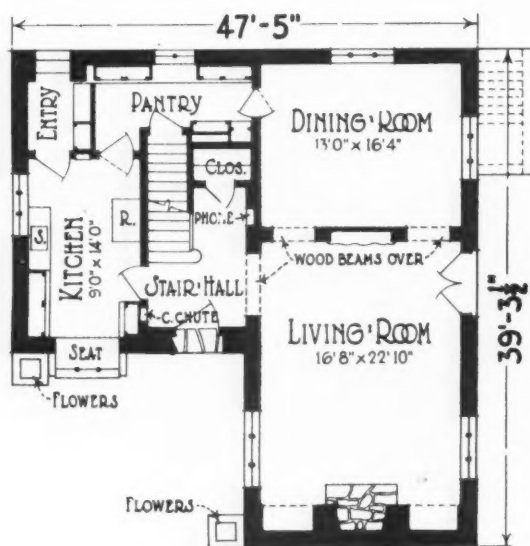
HOMES FOR NARROW LOTS



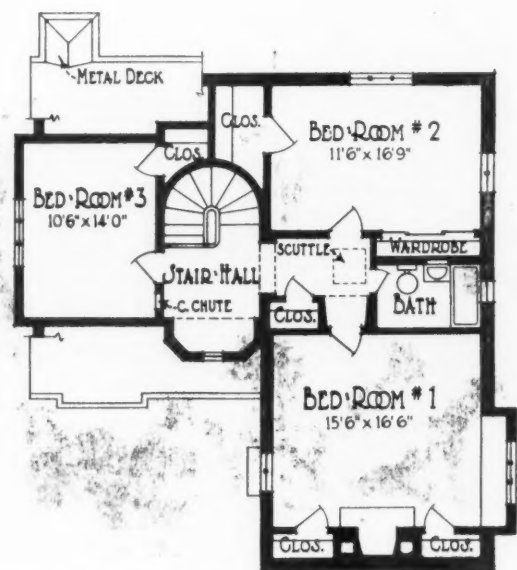
HAROLD ZOOK Architect, Chicago, Ill.

SIX ROOMS OF UNUSUAL CHARM

*Brick with Protruding Mortar Joints Has Been Effectively
Used in Producing This Distinctive English Design*



• FIRST FLOOR PLAN •



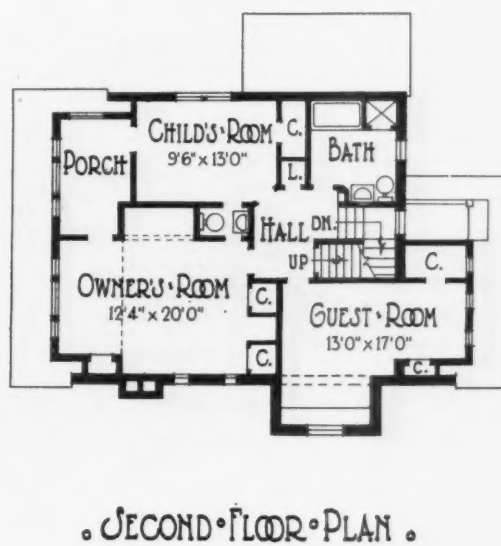
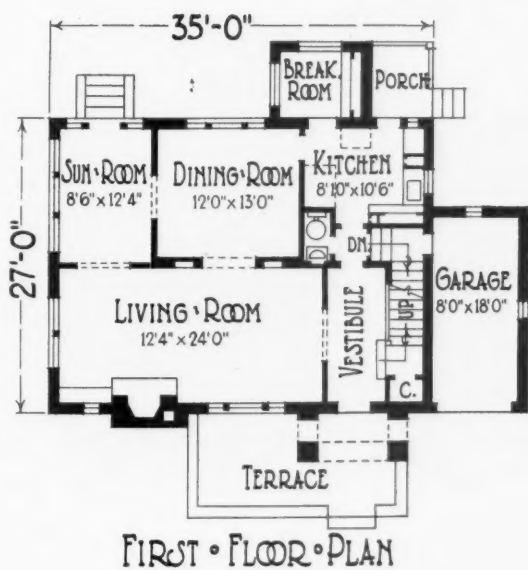
• SECOND FLOOR PLAN •

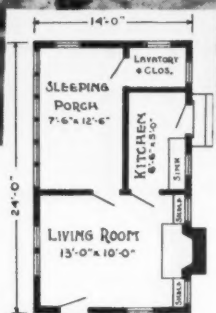


F. H. MAENNER & CO., Architects, Omaha, Neb.

ANOTHER HANDSOME BRICK HOME

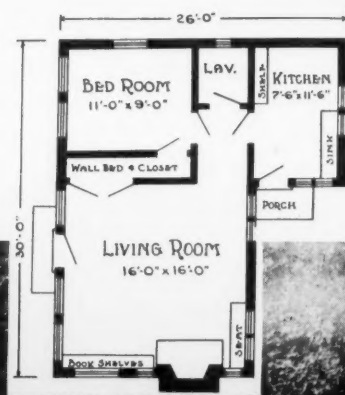
Bits of Stone Trim, Half Timbering, and a Shingled Dormer Add Just the Touch of Variety to Catch the Eye and Hold the Interest



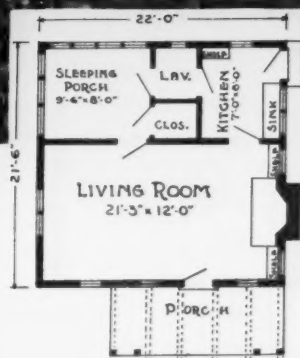


Above: This Small Mountain Cabin, with Weatherboard Outside Walls and Composition Roof, Contains Living Room, Kitchen and Porch.

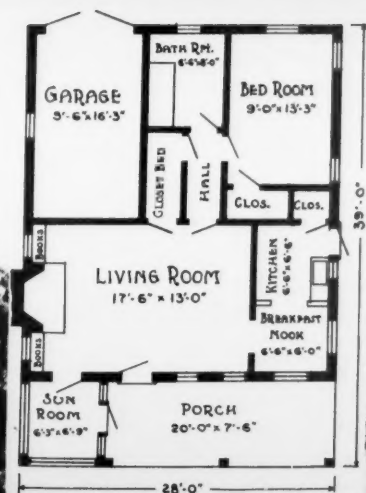
Below: Slabs Sawed from Spruce Logs Are Used for the Outside Walls of This Cabin, and the Roof Is of Composition. It contains three rooms.



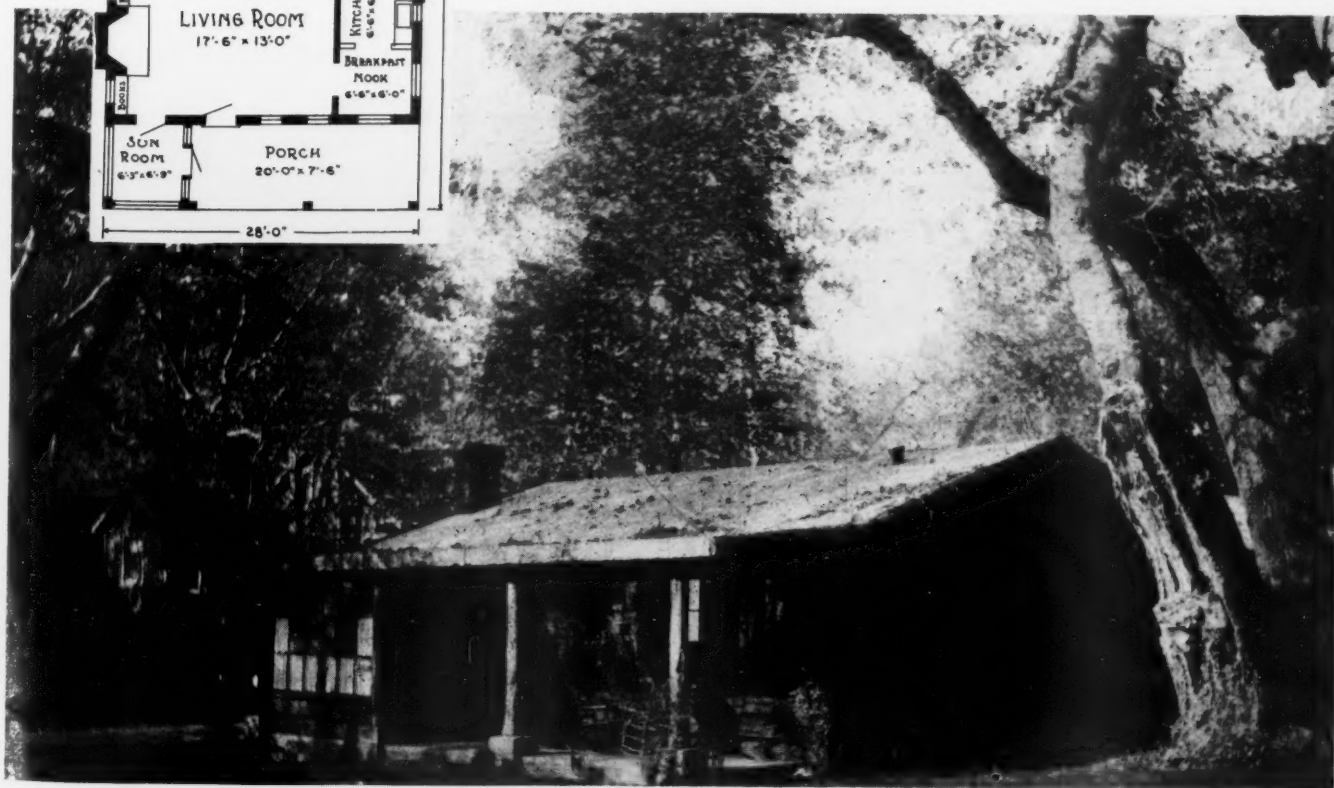
CLOSE-TO-NATURE CABINS



Above: Broad Vertical-set Boards Form the Walls of This Cabin. It has living room, sleeping porch, lavatory and kitchen.



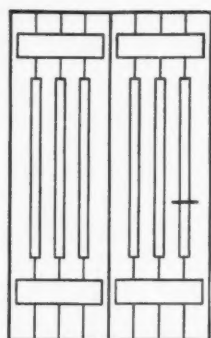
Below: A Mountain Cabin with Built-in Garage, Living Room, Bedroom, Kitchen and Bathroom, as Well as Several Closets.



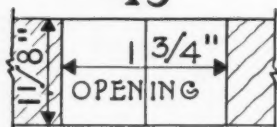
CLOSE-TO-NATURE CABINS



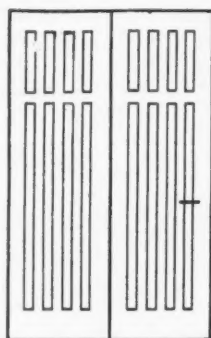
BLINDS and SHUTTERS



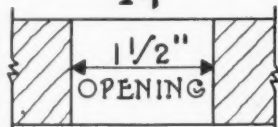
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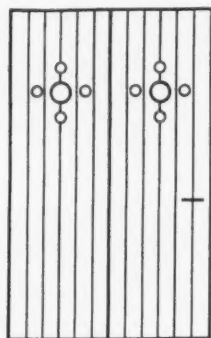
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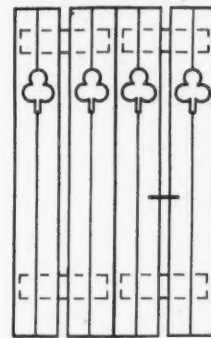
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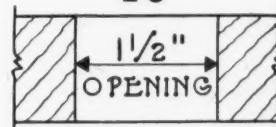
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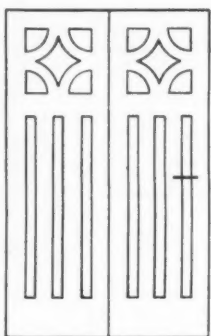
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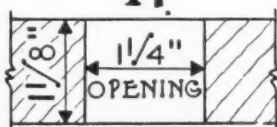
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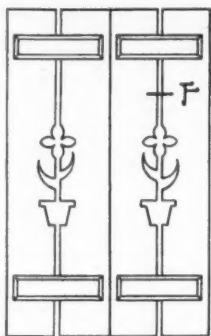
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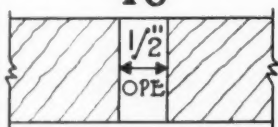
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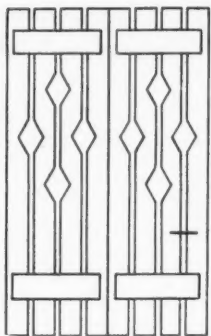
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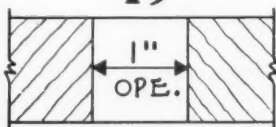
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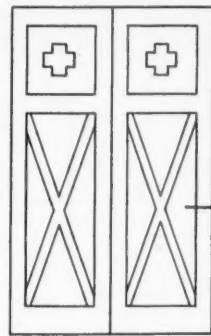
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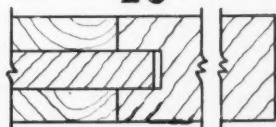
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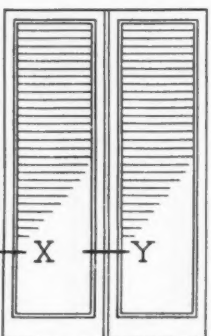
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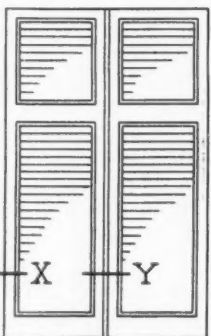
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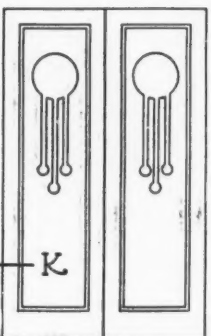
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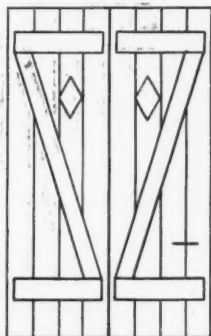
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• SECTION • K •



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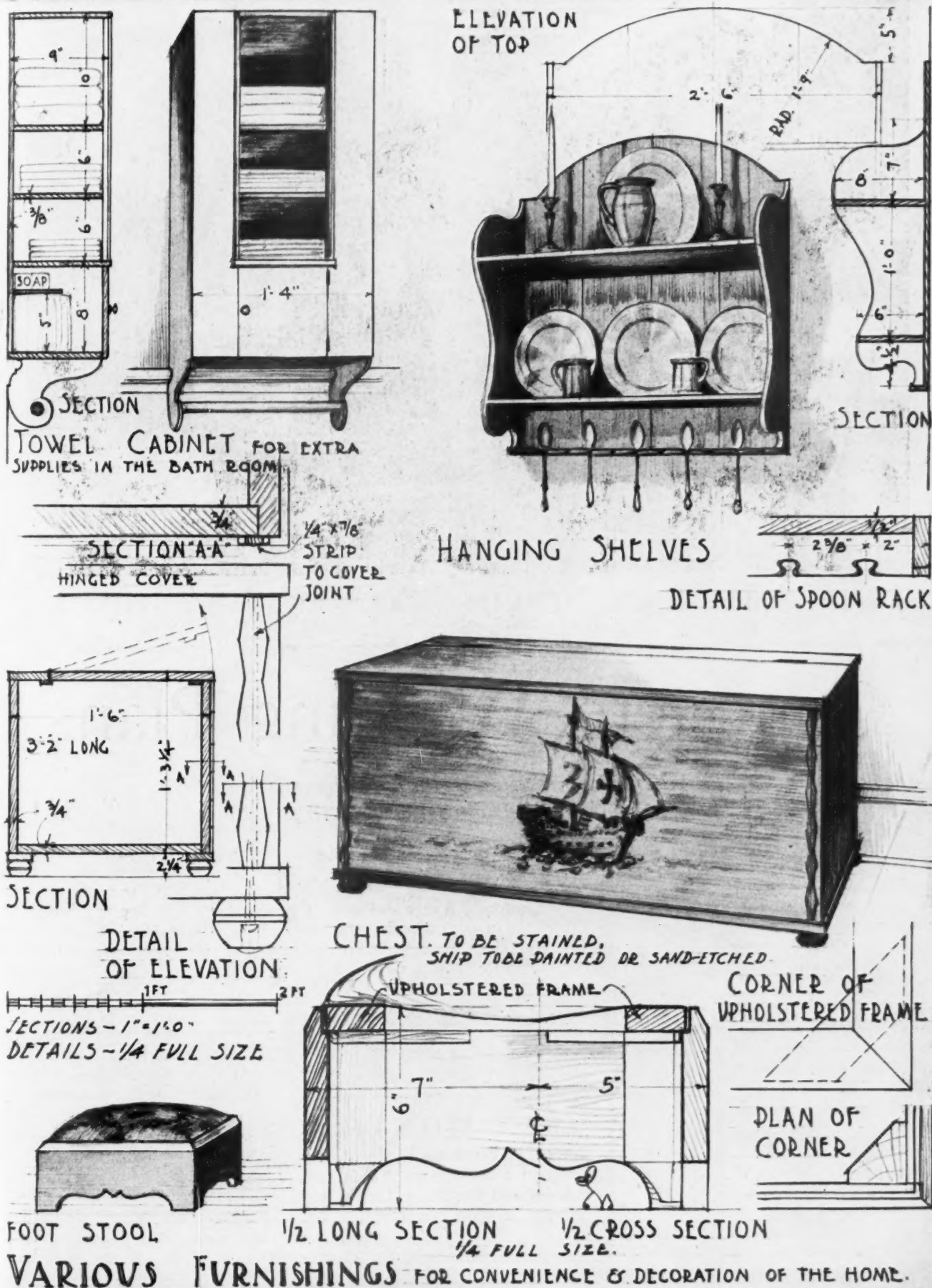


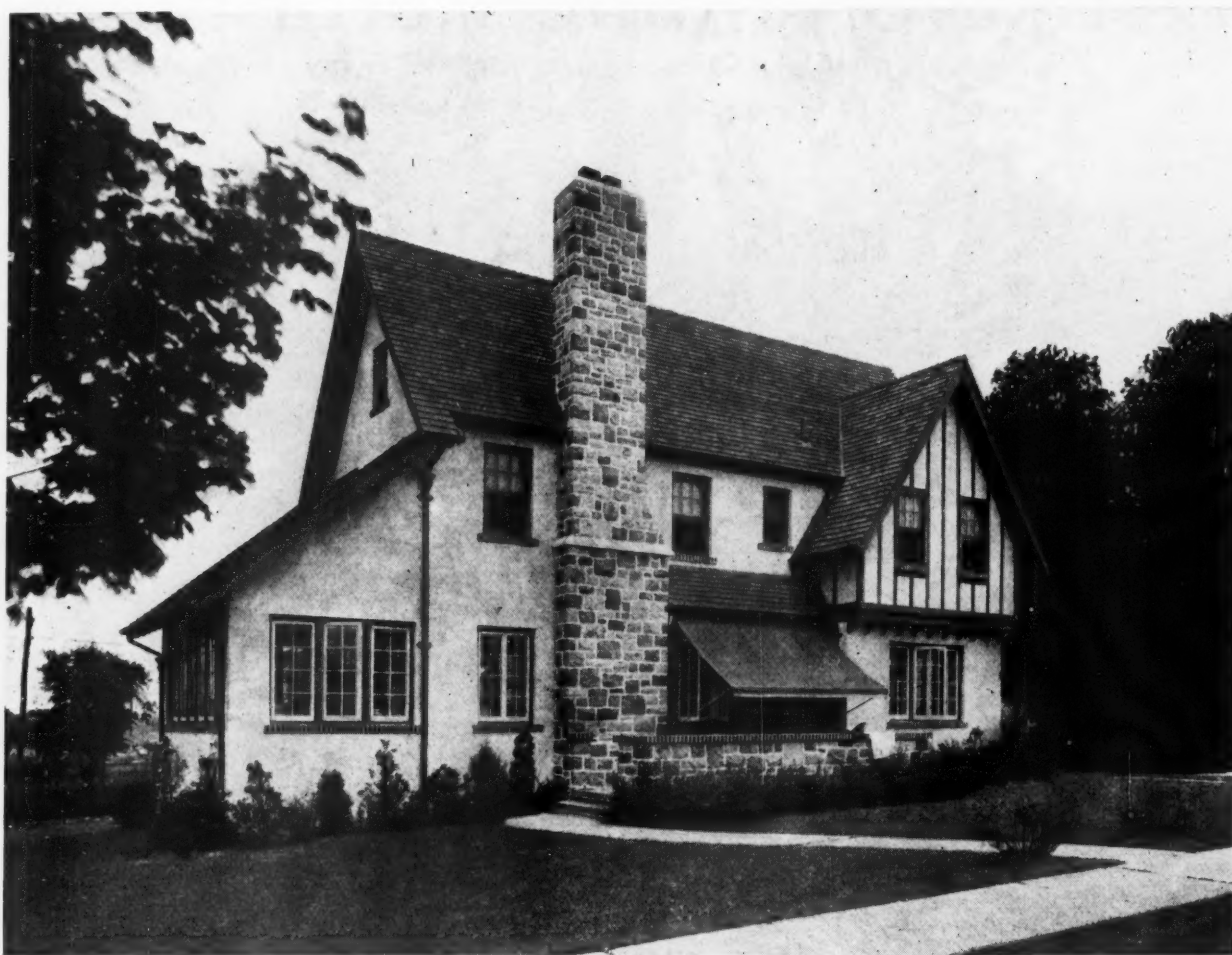
• SECTION • L •

Some Designs and Construction Details of Ornamental Shutters and Blinds. Offered as suggestions to the designer. Prepared by the "American Builder" Architectural Staff.

Details of Home Furnishings

Prepared by **Eldred Mowery and Richard G. Kimbell**
of The National Lumber Manufacturers' Association





THE AMERICAN BUILDER ALL-FEATURE HOME

Complete Working Plans

*This Nine-Room Stucco Home Is Presented in
One-Eighth-Inch Scale Drawings*

IN this design an otherwise rather drab exterior has been given life by half timbering in the gable end, rough stone used in the chimney and terrace and ornamental brickwork in the window sills. The awning too, adds its bit and the whole is a charming and exceedingly homelike dwelling.

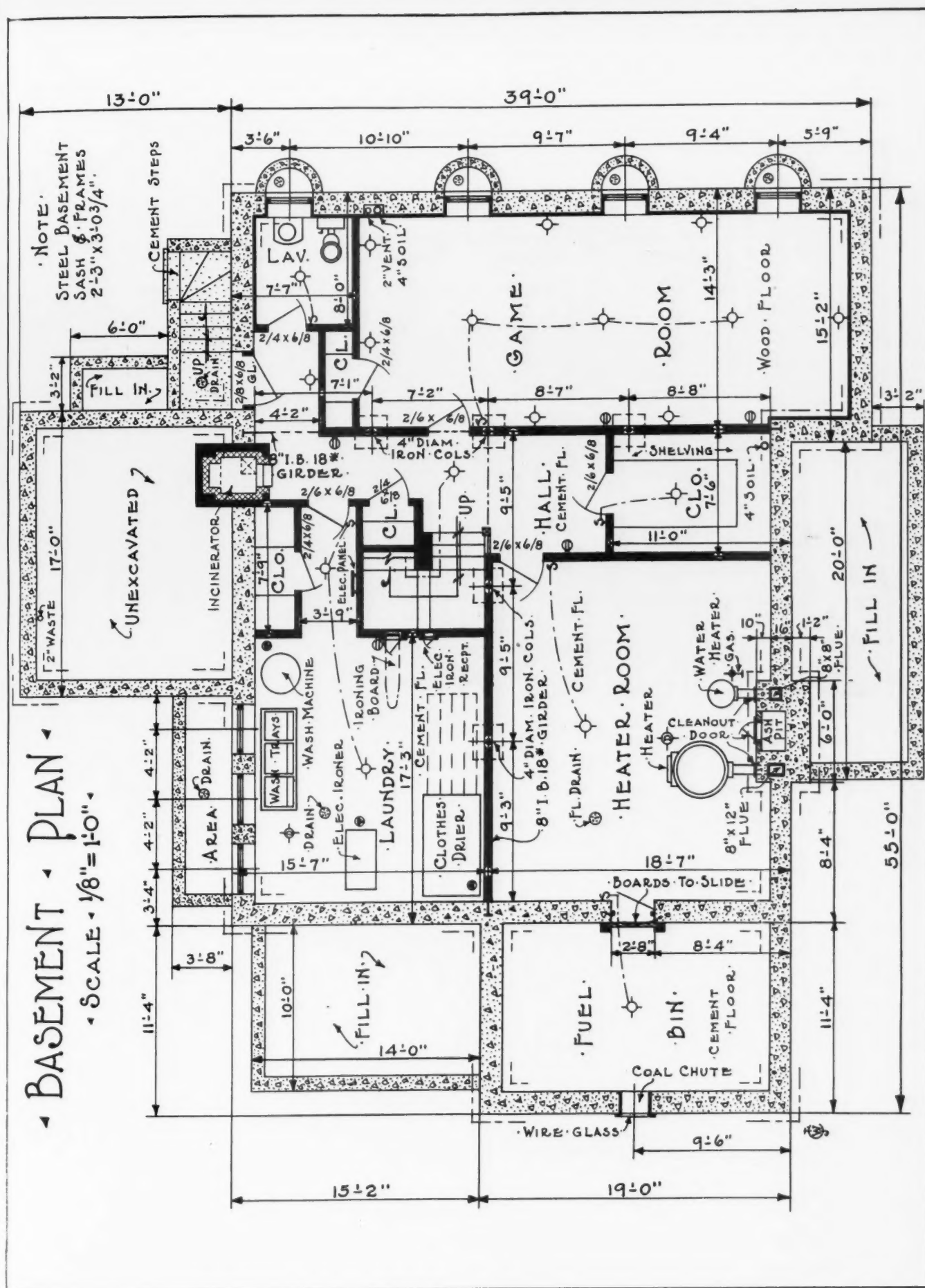
All of which goes to show what can be done with simple and inexpensive materials by a designer who knows his business. In designing a house, success or failure depends entirely on the skill of the architect and his knowledge of materials.

A house of nine rooms, plus a solarium, would be considered a rather large house by the average prospective home owner. The well arranged floor plan of this home, however, can be utilized

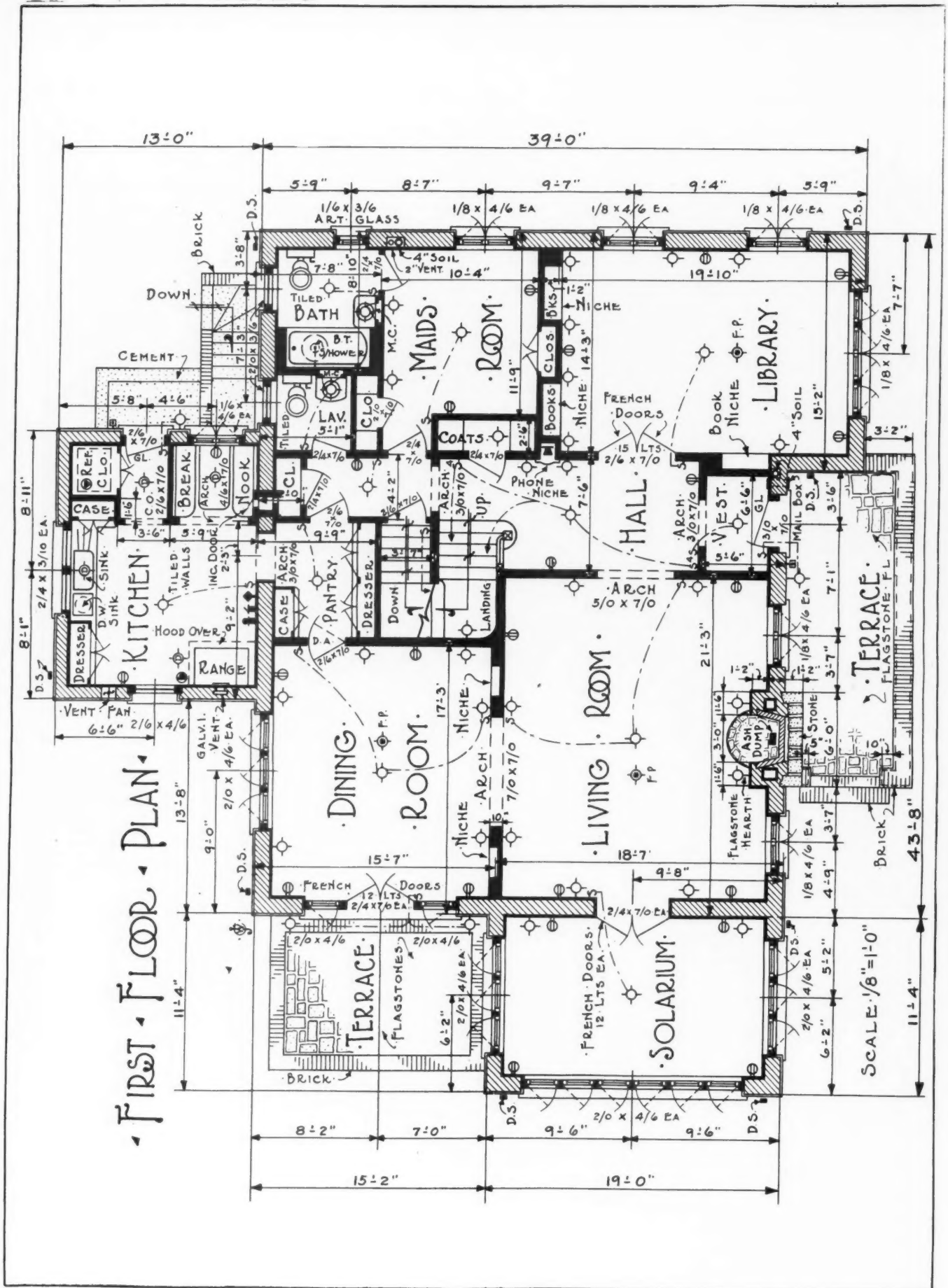
even when the prospective owner is not in the market for so large a home. It would be a simple matter to omit the kitchen wing and use the space occupied by the maid's room for a kitchen. As a still further reduction in size the solarium might be dropped off.

Even with these alterations the exterior would be attractive and would not be thrown out of balance. They would effect a considerable saving in cost. Later the omitted portions might be added in a remodeling operation undertaken, in the later years of ownership, when increased prosperity justified expansion and maintenance of value demanded modernization. The simplicity of these changes will be instantly apparent on referring to the plans reproduced on the next four pages.

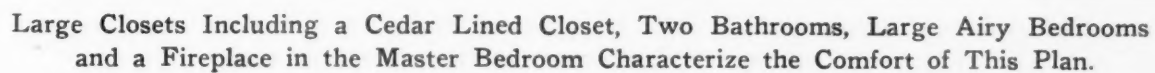
NEXT MONTH
Complete Working Plans of
a Spanish House with Six
Rooms and Basement Game
Room and a Solarium.

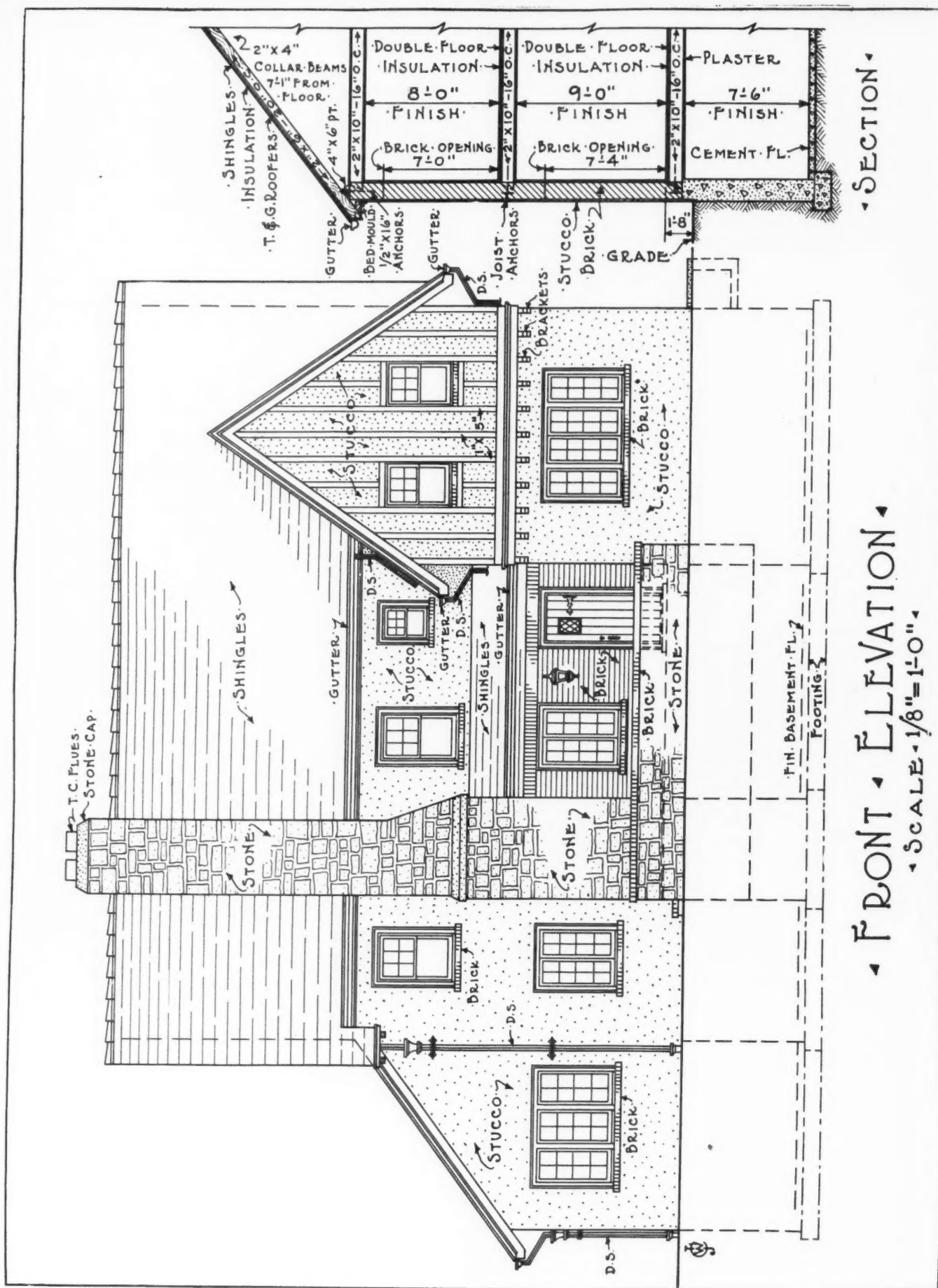


Partitioned Into a Heater Room and Fuel Bin, Laundry, and Game Room, and with a Large Closet and Lavatory Provided the Basement Becomes a Valuable Part of the House.



The First Floor of the All-Feature Home Is Easily Altered if a Smaller House Is Wanted and the Solarium and Kitchen Wings Are Omitted.





The Skillful Use of Brick, Stone and Half Timbering Make the Front Elevation Attractive. The construction is shown in the section drawing.

How to Figure Operating Costs on POWER SAWS

By L. G. KELLEY

WE have seen many articles on "Cost Systems," "Overhead," etc. In our humble opinion these are all important, but we feel that any method of determining "costs" or "overhead" not based on simple, sound reasoning, and that cannot be easily and quickly applied to any contractor's business, is *useless even if it is good*.

Thus, we have the two sides of the question. The result is that, lacking a simple system, we must use a complicated one or none at all. The complicated systems are in principle better than none, but in practice they are sometimes so confusing that they cause too many errors. Also the work of checking up on costs, where some systems are used, is taken out of the estimator's or contractor's hands and put into a bookkeeper's hands, who, in many cases, is unfamiliar with the operations performed. We know of some cases where mere boys were given the job of checking up on production and costs. The reason here was that they were "quick at figures." (?)

To get back to our subject, we cannot get at the costs and the reasons for certain costs unless we are familiar with "*men, methods and materials*," and if we try to figure the cost of operating a machine, we must also know the conditions which make for economical operation of that machine. If we are to charge up the cost of a saw, for example, to a certain job, we should be able to distinguish between the costs known as "*fixed charges*" and those known as "*operating costs*."

In general we may say there are three or possibly more ways of looking at the problem. If we combine the work of recording costs with the work of keeping our costs within certain reasonable limits, we must go farther than any mere figures will take us. We must know:

- (1) The cost of the saw.
- (2) The useful life in years, days and hours.
- (3) Average cost for repairs.
- (4) Average cost for oil, power, etc.
- (5) Average cost for filing saws.
- (6) Number of men required to operate at the assumed rate or capacity.
- (7) The labor hours per unit of work done.

In addition to these there are some other points that we should consider, at least: (1) How long, in *number of days*, can a saw be kept on a certain job at a profit? (2) How many hours per day (average) will it be operated? The answers to these questions *determine whether our operating costs are too high in comparison to work done or not*. When we recognize the fact that it costs us a certain amount per day *just to own a machine*, we can readily see that keeping a saw on the job for 3 or 4 weeks when it is not used will add to the cost of operation per hour, or will increase the overhead for that job.

Here we have the three methods we mentioned, that is:

(1) We may assume a certain amount as the *fixed charge per day*, and charge this to the *job as a whole*, as "overhead," and then use the *cost of operation* as our

machine cost, which is charged to the *work done*; or

(2) We may find the *cost of operation* and add to it the *fixed charge per day*, and use this as our total machine cost; or

(3) We may consider that the fixed charge (of owning the machine) should be *charged to the job when the machine is idle*, and *charged to the actual work done when machine is in actual operation*. Thus the fixed charge is distributed three ways, to the actual work when in operation, to the job when kept on the job but not in use, and to general "overhead" when not in use on any job.

All three of these methods are used at times, and are reasonable, but we believe the last is more reasonable and useful. Method (1) allows overhead to increase without a check of any kind. The *estimated machine cost* will be too low. Method (2) is the one usually used, but it confuses our records. A machine may be sent to a job *where and when it cannot be used*, and the foreman in charge may have to keep it on the job for several days just to use it perhaps 4 hours. We will assume, for example, that he keeps it 10 days, and the fixed charge is \$0.50 per day. If he uses it for 4 hours with a total labor cost of perhaps \$6.00, he must also add $10 \times 50 = \$5.00$ more for the "fixed charge." This almost doubles his cost, and estimating data based on such cost records would obviously be inaccurate and very much so. Now, assuming that 4 hours is the average time the saw is run per day, then this job should be charged up for the *fixed charge for one day*, but *only one day*, or at least some attempt should be made to allow for a reasonable minimum number of days.

How to Figure Costs

Yearly Costs (Fixed Charges)

First cost of saw (no extras figured) ..	\$120.00
Depreciation, \$120.00 for 3-year life =	\$40.00 per year
Interest, assumed at	7.20
Repairs, assumed at	25.00
Yearly cost	\$72.20

Daily Costs (Fixed Charges)

(Assume normal season as 200 working days.)	
Fixed cost $\$72.20 \div 200 =$	\$.361 cost per day.
Hourly Costs (Fixed Charges)	
$\$.361 \div 8 =$	\$.045 (4½ cents) cost per hour.

Actual Operating Costs

Sharpening saws and oiling requires 1 hr. time per day, or 1/8 hr.	@ \$1.50 = \$.20
Power, estimated05
Actual operating cost per hour	\$.25

An Example of Determining Costs

Problem: A contractor states that he cuts three 2" x 10" joists per minute with a certain saw, using one carpenter and one helper. What are his costs per 1,000 ft. B. M.?

Solution (Usual method): Assume the 2" x 10" joists are for an ordinary span of 18 ft. (Longer spans would increase the ft. B.M., but would also add to handling cost.) Each joist equals 30 ft. B.M. Cutting, at three per minute = 90 ft. B.M. per min., or 540 ft. B.M. per hr., or about 1.85 hrs. per 1,000 ft.

Assume, for purposes of the problem, the same cost as previously figured, carpenters @ \$1.00 per hr.; laborers @ \$.60 per hr.; and cost of machine = \$.04½ (fixed charge) plus \$.25 (operating charge) = \$.29½, say 30 cents per hr.

1.85 hrs. @ \$1.00 =	\$1.85
1.85 hrs. @ \$.60 =	1.11
	<hr/>
1.85 hrs. for saw @ \$.30 =	.56
	<hr/>
	\$3.52

Another solution:

Labor	= \$2.97
Fixed charge, 1 day	= .36
Operating costs, 1.85 hrs. @ \$.25 =	.46
	<hr/>
	\$3.79

Cutting by hand, 2" x 10" joists estimated at 7 to 9 hrs., or approximately 8 hrs. per 1,000. (This assumes work where some cutting and fitting is required.)

Costs Compared

Hand labor cost, 8 hrs. @ \$1.50 =	\$12.00
Machine cost	= 3.52
	<hr/>

Saving\$8.48
over hand labor cost.

Here this is a saving of about 70% of the labor cost. But if the saw has to carry an additional fixed charge for perhaps 10 days of idleness, then we have—

$\$3.79 + (10 \times \$3.60) = \$3.79 + \$3.60 = \$7.39$
 $\$12.00 - \$7.39 = \$4.61$ saving, or only 40% of labor cost.

Framing the Barn Hood

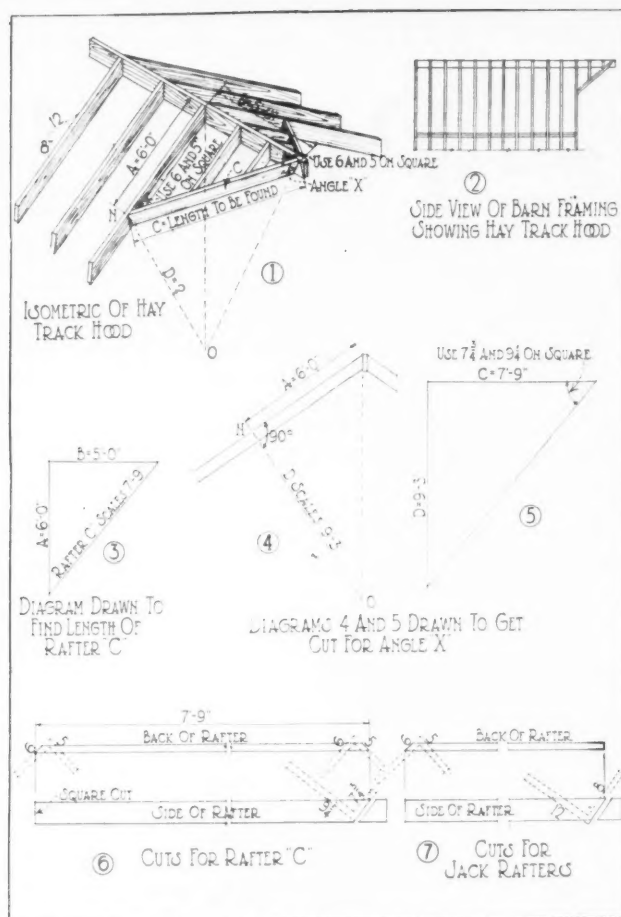
Has Any Reader a Better Way of Solving This Knotty Problem?

By JOHN T. NEUFELD

THIS month's problem was suggested by a reader of the AMERICAN BUILDER. The problem is to find the cuts for the brace rafter for the hay track hood of a barn. The particular rafter is indicated by the letter "C" in figure 1. This illustration shows one way of framing this hood or extension for the hay track.

This rafter has one peculiarity not found elsewhere in roof framing of ordinary hip and valley roofs. The sides of the rafter are not in a vertical plane. All other common hip or valley rafters are generally placed vertically, or in a vertical plane, but this rafter is tilted so that the upper edge is on the same plane with the other rafters. The fact that this rafter is tilted makes it difficult to give any specific rule, and we have therefore used a graphical method of solving for the length and the cuts. It would be interesting for readers to send in their solutions of this problem, if any have found other ways of solving this.

In figure 3, we indicate how the length of rafter C is found. A triangle is drawn, with the sides A = 6 feet, 0 inches and B = 5 feet, 0 inches at right angles to each other. Scaling the diagonal "C", we obtain the length of this rafter, which in this case is 7 feet, 9 inches.



The problem now is to find the angles of the cuts for this rafter. The side cut at both ends is obtained by using the numbers 5 and 6 on the square. This is easily understood, as the two sides of the triangle formed by A, B and C are respectively 5 and 6 feet. The vertical cuts for the rafter must next be found. At the lower end, this rafter is cut square, or 90 degrees. The upper angle is one that is more difficult to find. The figure 4 shows what is a front elevation of the end of the barn. The line D is extended at right angles to the upper edge of the common rafter, until it intersects a line dropped from the center or upper end of the common rafter. The distance from N to O scales 9 feet, 3 inches. Now proceed to figure 5. This line D and the line C representing rafter C, now form a right triangle, and this right triangle gives the cut at the upper end of the rafter C. This cut then is obtained by using the number 7¾ and 9¼ on the square.

Figure 6 shows a side view and top view of rafter C, and shows the square applied as it would be to mark for the cuts.

The jack rafters—that is, the short rafters between the ridge and the brace rafter have a square cut at the lower end with the side cut, using the numbers 5 and 6 on the square. At the upper end, the cut is the same as for the common rafters; that is, using the numbers 8 and 12 on the square, as the roof has an 8-inch rise per foot run.

When solving for a problem of this kind, the graphs may be drawn at any convenient scale. Very often, the scale of one inch equals one foot is most convenient to use. Some carpenters use the scale of three-fourths inch equals one foot, because then every sixteenth of an inch is one-twelfth of a foot or one inch.

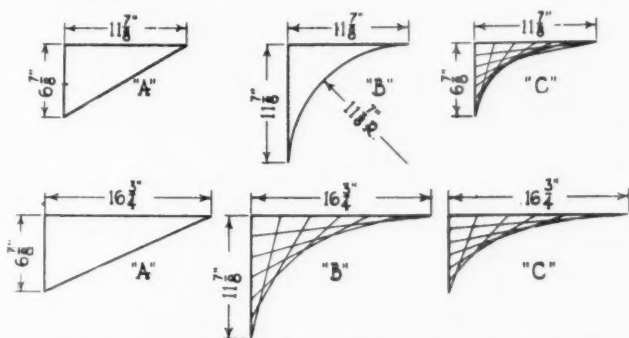
FROM AN ARCHITECT'S NOTE BOOK

Sketches that Solve Puzzling Points

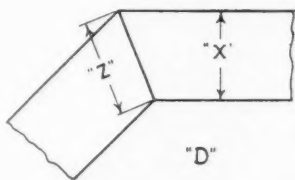
By JAMES T. NARBETT,
Architect, A. I. A.

Laying Out the Cove Bracket Miter

IN a past issue the laying out of a true elliptic was shown; now let us put this method to practical use in the working out of detail for miter coves. In example "A" is shown a plain angular bracket, in "B" a circular cove and in "C" an elliptic bracket. I am using in this case an arbitrary measurement as shown. With rule measure the diagonal of $11\frac{7}{8}$ " on the two-foot square which is $16\frac{3}{4}$ ".



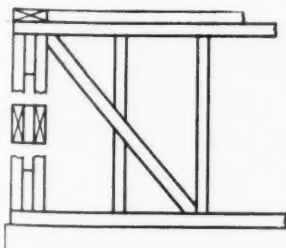
In laying out miter bracket for an octagonal corner as shown in "D," X represents width of bracket and Z the miter measurement, starting with a bracket of three inches.



X.	Z.
3"	$3\frac{3}{4}$ "
4"	$4\frac{3}{16}$ "
5"	$5\frac{3}{8}$ "
6"	$6\frac{1}{4}$ "
7"	$7\frac{1}{2}$ "
8"	$8\frac{5}{8}$ "
9"	$9\frac{1}{2}$ "
10"	$10\frac{13}{16}$ "
11"	$11\frac{7}{8}$ "
12"	13"

Bracing the Corner of Basement

A SIMPLE and time saving method of basement bracing, eliminating needless material and labor and one that is universally used by modern builders is shown herewith:



Cutting the brace at a little less than a 45 degree angle adds to the efficiency of the brace; for a brace cut at too flat an angle has a tendency to kick out at the bottom whereas the one at a 45 degree angle must necessarily lift its own weight before the corner will give. Fit the brace to a position against the stud as shown; the upper end

may be cut off flush with top of corner post afterwards, insuring a neat tight fit. After the corner post is set up and well nailed on the bottom end, the top ends of both braces are nailed to the post, the post plumbed and the lower end permanently nailed in when the corner is complete. Proceed with the other three likewise and then nail in the studs.

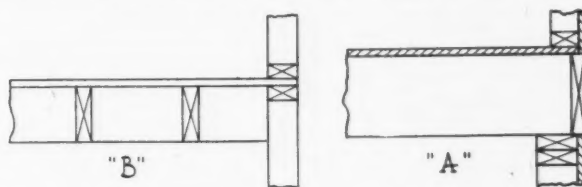
This system does away with the necessity of temporary braces, afterwards having to knock them out, and the loss of the timber.



Joist Framing Kinks

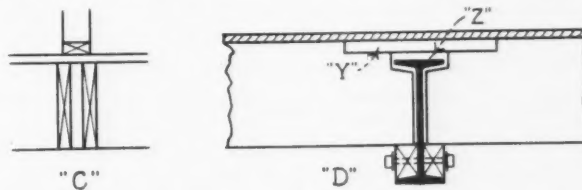
WHERE permitted by City Ordinances the method of joist framing shown in detail "A" permits of greater bearing of joists and saves the width of joist in exterior sheathing.

In design "B" a customary way of framing end of building parallel to joists is shown. Note: this practice should be limited to joists not exceeding 8" in width as there is an unequal shrinkage between the plate and joists.



Where joists engage double or single triple headers and where no hangers are used; first spike the single header to the ends of joists with 30d. spikes and then add the other headers and spike with 16d.

Added strength is gained in every case where joists carry over two spans or more as then the joists assume the fixed beam status. A 2" x 8" joist carried over two spans is far stronger than a 2" x 10" over one span only.



In long spans before nailing in bridging it is good practice to set up a temporary shore under same giving it a slight camber. This shore should not be removed until the sub-floor has been nailed down and the bridging firmly nailed in.

In setting double joists under cross partitions it is well to consider the drainage and service piping by setting the joists from 1" to 2" apart as the occasion demands and blocking and spiking.

See detail "C."

Where joists engage masonry walls and where the story above sits back of the one below, the joist ends should be cut square but if the two walls continue through the same thickness then the joists should be flared off 4". All joists, in fact all wood framing coming in contact with exterior masonry walls, should be treated with creosote or other preservative to prevent dry rot and termite invasion. Never allow the bricklayer to carry his brickwork up flush with top of joists; there should be at least 1" of clearance.

Where joists rest in steel beam as shown in detail "D," the joists should be of sufficient width to allow crosspiece "Y" to be nailed and allow shrinkage room over beam at "Z."

How Dan Does It

A Department for Passing "Life Savers" Along to Other Builders

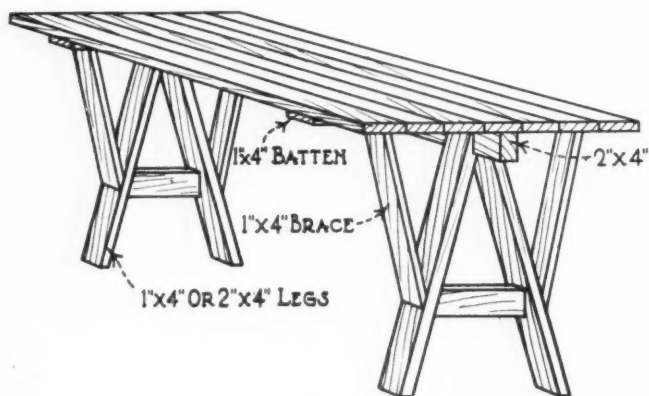
\$2 for an Idea

Dan is an ingenious cuss. Nothing ever stumps him. He always knows the way out when he runs into a tough problem out on the job or in the office. Dan is editor of this Department and will pay \$2.00 each for every good idea he can use here to show and tell other builders "how to do it." Send him a rough sketch and a short description of what the tough job was and how you handled it.

Address Dan-Do-It, care of American Builder, 105 W. Adams St., Chicago, Ill.

A Saw Horse Work Bench

THE sketch shows a handy bench which I use when working and fitting window sash. It consists of a table top fitted onto an ordinary saw horse as is quite simple to construct. The table top is made from either scrap or from



A Bench That Is Simple to Build from a Saw Horse and Very Handy in Fitting Sash.

one by four-inch flooring and measures 28 inches by 48 inches. This rests on two one by four-inch battens nailed onto the top of the saw horse and braced to the legs of the horse. This makes a very handy work bench, one that is easily moved about as needed, and it can be knocked down when the job is finished.

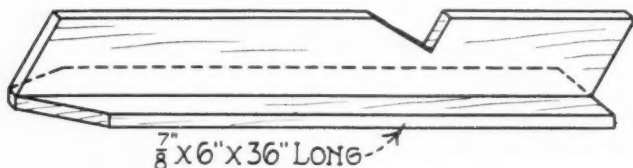
W. H. KEMPER, 49 Morgan Ave., Montgomery, Ala.



Another Rafter Pattern

IN the June issue a rafter pattern, by E. Schwartz, was illustrated. It is all right as far as it goes but it is not complete in that it can be used for the cutting of only one bevel. The sketch shows a rafter marking pattern I have used for some time. It is a time saver on either old or new work.

This pattern can be used for the heel cut on all common and jack rafters, as well as the top cut or point cut on both, as it is beveled to cut both right and left hand rafters.



This Pattern Can Be Used for Heel and Top Cuts on Both Right and Left Hand Jack Rafters to Save Time in Cutting.

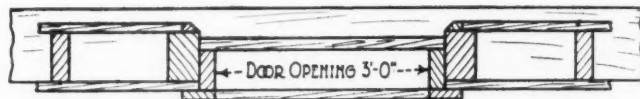
I use $\frac{7}{8}$ -inch material 36 inches long to make the pattern, for two by six rafters. Use straight material and make the form "T" shape as shown.

W. H. KEMPER, 49 Morgan Ave., Montgomery, Ala.



Ice House Door Construction

HERE is a sketch of a construction I have used and found very satisfactory for ice house doors. The sketch is a sectional view which explains itself quite fully. The four by sixes at each side of the opening are carried through from the sill to the rafters. The two by fours need only be as high as the door.



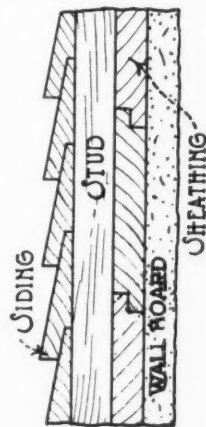
A Simple and Rugged Construction for Ice House Doors, Sectional View.

These two by fours serve a three-fold purpose. They act as door stops, inside plank stops, and give a good rugged construction which resists the pressure of the ice and sawdust packing inside the ice house.—JOSEPH BOYER, Park Falls, Wis.



To Stiffen Wallboard

ON inexpensive jobs where plaster board or fiber board is used on the walls and not plastered, the board needs stiffening to keep it from bulging. At the same time, because of the necessity of keeping down costs you can not add any stiffening material. I take care of such a situation by putting the wood sheathing on the inside of the studs instead of outside. This makes the job as a whole just as strong and also stiffens the wall board.—W. Kraatz, 85 Holland Ave., White Plains, N. Y.



On Inexpensive Jobs Place the Sheathing Inside to Stiffen the Wall-board.

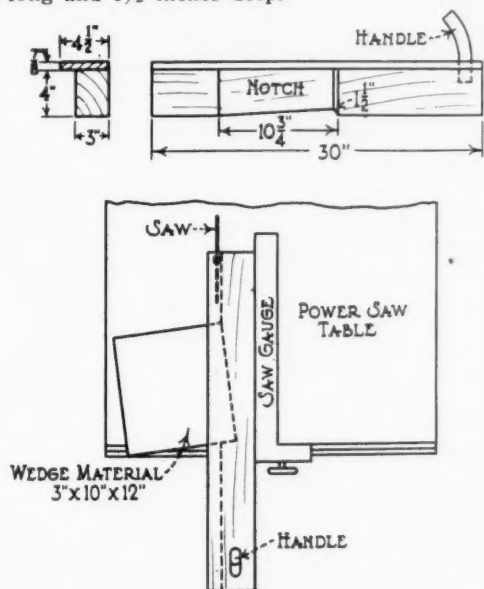
To Sharpen Hollow Chisels

THE hollow chisels of mortising machines are difficult to sharpen by ordinary methods. Here is a method, however, which has been found very satisfactory by a large planing mill in this city. The bit is removed and the chisel is reamed out with a rose head countersink until sharp and then finished on an oil stone. A good job and can be completed quickly this way.

E. E. YOUNGKIN, 602 E. Grant Ave., Altoona, Pa.

Cutting Wedges on Power Saw

HERE is a sketch of a device for cutting wedges on a power saw, cheaply, quickly and with perfect safety. I use a piece of three by four-inch board, 30 inches long. In this I cut a wedge shaped notch, beginning about six inches from the end, in the four-inch side. I make this notch $10\frac{3}{4}$ inches long and $1\frac{1}{2}$ inches deep.



With This Device Wedges Can Be Cut on the Power Saw Quickly and Safely.

On top of this piece I nail a $\frac{7}{8}$ by $\frac{1}{4}$ by 30-inch piece. This projects $1\frac{1}{2}$ inches over the notch and forms a guard. I then make a mortise, for a handle, in the end farthest from the notch. I make the handle with a little curve forward to fit the hand.

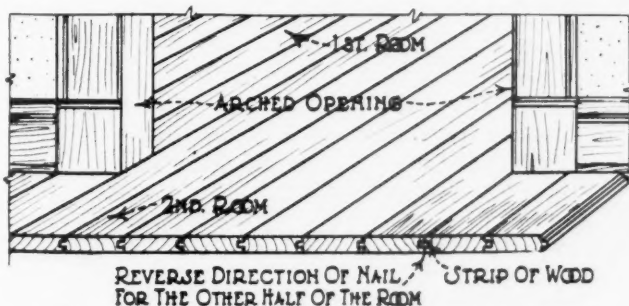
To use this device, I raise the saw till it stands about $3\frac{1}{2}$ inches above the table, and set the gauge $3\frac{1}{4}$ inches away from the saw, leaving $\frac{1}{4}$ inch clearance. The wedge material is cut 12 inches long and 10 or 12 inches wide, and any thickness desired. I then place the device against the saw gauge, place one of the pieces of wedge material in the notch and saw one wedge. Turn the block end for end and saw another wedge, and proceed in this way.

H. B. MASON, Duncan Falls, Ohio.



When Laying Flooring

IN order to get a straight line, when laying flooring through an arched opening, I start in one room and when I come to the opening lay right through it into the second room, and continue laying from the opening on in the second room just as in the first. To finish the second room it is necessary to reverse the direction of nailing for the other half of the room. To do this I use a strip of wood inserted into the grooves of the two pieces of flooring where the pieces are



Lay the Flooring Right Through the Opening, Then Use a Strip Fitted into the Two Grooves to Reverse the Direction of Nailing.

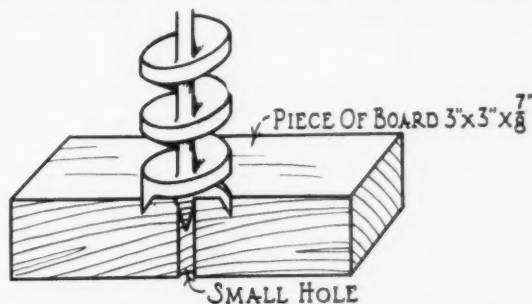
joined with the grooved sides together. This takes the place of the tongue and from there on the laying is just as usual.

WERNER KRAATZ, 85 Holland Ave., White Plains, N. Y.



To Bore Without Splitting

I HAVE found that many carpenters can not bore a hole, say one inch in diameter, through a small piece of board, say three by three by $\frac{7}{8}$ inches, without splitting it, unless they put it in a vise. It can be done quite easily. First drill a hole through the block with a bit that does not have



If a Small Hole Is Bored First the Large Bit Will Not Split the Board.

a screw on it and is about half the size of the screw on the larger bit. Then proceed with the larger bit. Or you can make the first hole just large enough for the screw threads of the larger bit to hold on its wall.

E. W. DEHART, 1230 Kirkman Place, Union, N. J.

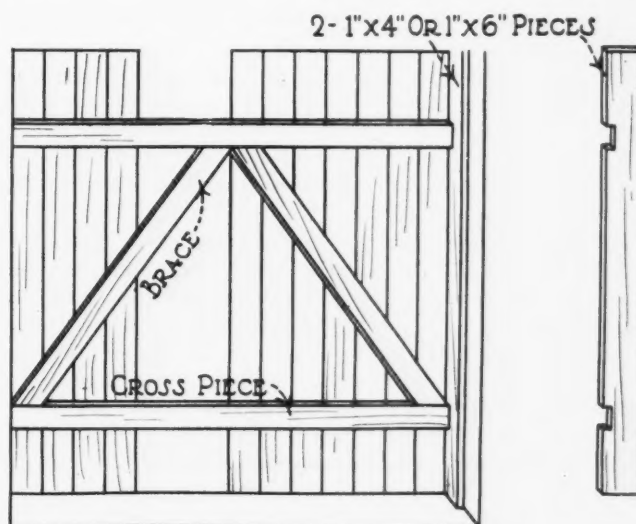


The One Man Door Again

IN the one man door building job, by C. J. Gardener,—in the January issue—the braces should run from the hinge at the bottom of the door cleat to the center of the top cleat as this braces the door much better. I use about the same method of making such doors but handle it as follows:

I use two pieces of one by four, or one by six, cut the height of the opening. I place these on the trestles tack them together and mark, saw and chisel out for the cross pieces. I then take them apart and nail one on each side of the opening. I put the cross pieces in place and also the braces running the latter as stated above. I next put on the outside boards and then the hinges. I complete siding the door and finally saw it in two.

ARNOLD E. MILLER, Agosta, Ohio.



The Door Braces Should Run from the Lower Hinges to the Top Cleat at the Center.

Books, Bulletins and Catalogs for the Builder's Library

Keep Your Files Up to Date. Check These Items Every Month and Write for Those You Need. They Will Be Sent Free on Request Except Where a Price Is Noted. The American Builder Should Always Be Mentioned When Writing for These Publications.

Offered by Book Publishers

"The Stadium"

This is a recent treatise, by Myron W. Serby, Consulting Engineer, on the design and equipment of modern stadiums and playing fields. Published by the American Institute of Steel Construction, Incorporated, 285 Madison Ave., New York City. Price \$1.50.

"New Building Estimators' Handbook"

This well known handbook by William Arthur has been revised and is now published in a fifteenth edition. It is a standard handbook for architects, engineers, builders, contractors, appraisers, superintendents and draftsmen. Published by the Scientific Book Corporation, 15 E. 26th St., New York City. Price \$6.00.

"Accounting in the Lumber Industry"

Here is a complete reference manual on the subject of accounting in the lumber industry, by H. W. Eckhardt. It contains detailed information for the preparation of accounts in any department of the industry and is of value to both wholesale and retail lumber companies. Published by Harper & Brothers, 49 E. 33rd St., New York City. Price \$6.00.

"Appraising the Home"

Horace F. Clark, Educational Director of the American Savings, Building and Loan Institute, has written this book for the purpose of helping to insure the ultimate owner full value in any home built or purchased. It is based on the successful experience of appraisers and others active in this type of work. Published by Prentice-Hall, Inc., 70 Fifth Ave., New York City. Price \$6.00.

"Small Homes of Architectural Distinction"

Edited by Robert T. Jones, A.I.A., this volume contains a collection of suggested home plans designed by the Architects' Small House Service Bureau. It includes plans of 250 houses of three to six rooms which can be built at prices ranging from \$3,000 to \$10,000. Published by Harper & Brothers, 49 E. 33rd St., New York City. Price \$5.00.

"The Home Moderne"

This is Volume I of a series of four volumes to be published on the subject of modern art in architecture, and comprises a set of 25 plates illustrating homes, with floor plans, in a wide variety of styles. This booklet was prepared and published by the Hunter Service, Duncan Hunter, Architect, 10 E. 40th St., New York City. Price 60 cents.

"Design of Masonry Structures and Foundations"

The second edition of this book, by Clement C. Williams, Dean of Engineering, University of Iowa, has recently been published by the McGraw-Hill Book Co., Inc., 370 Seventh Ave., New York City. Price \$5.00.

"Direct Advertising Guide"

The 1930 edition of this yearbook of outstanding advertising campaigns and reference manual for those who plan, produce and use printed matter to promote sales is edited by J. C. Aspley, editor of the Dartnell publications and of Printed Salesmanship Magazine. Published by The Dartnell Corporation, 4660 Ravenswood Ave., Chicago. Price \$2.25.

"The Personality of a House"

A new book by Emily Post, carrying the sub-title, "The Blue Book of Home Design and Decoration," this interesting and useful volume discusses, with the aid of numerous illustrations, plans and color charts, the exterior design of the house, its surroundings and the interior arrangements, color harmony and decorative effects of each room. Published by Funk & Wagnalls Company, New York City. Price \$4.00.

Contractors' Equipment

Use of the Level-Transit

"How to Lay Out Building Lots Accurately" is the title of a small booklet published by the David White Co., Inc., 315 Court St., Milwaukee, Wis., explaining the use of this company's instruments.

Electrically Driven Tools

The James Clark, Jr., Electric Co., Inc., 600 Bergman St., Louisville, Ky., offers a catalog, No. 32, covering its line of electric tools including drills, buffers, grinders, screw drivers, hack saws, sanders, and stone cutting, drilling and grooving tools.

Contractors' Machinery

The National Equipment Corporation, Milwaukee, Wis., has published Catalog N5 covering pavers, pumps, power shovels, graders and ditchers, cranes, concrete mixers, chuting plants, hoists, mortar mixers, saw rigs, and similar machines of its varied allied lines.

Electric Refrigeration

"Electric Refrigeration and its Relation to the Earning Power of Apartments" is the title of a new booklet issued by the General Electric Company, Electric Refrigeration Department, Schenectady, N. Y. It contains important information, facts and figures on the subject.

Woodworking Machinery

Crescent woodworking machinery, manufactured by The Crescent Machine Company, Leetonia, Ohio, is fully described and illustrated in the 1930 catalog of this company.

Instruments for Builders

The David White Co., Inc., 315 Court St., Milwaukee, Wis., has published its Catalog A, 6th Edition, covering its complete line of instruments for builders, engineers, and surveyors.

Equipment for Buildings

Heating Boilers

Capitol Red Top Boilers are manufactured by the United States Radiator Corp., Detroit, Mich., and are fully described and illustrated in colors, and ratings listed, in a new booklet issued by this company.

"Elevator Signals"

The Richard-Wilcox Mfg. Co., Aurora, Ill., has published a booklet under this title, listed as catalog No. A-57, which covers the most commonly used signal systems in the very complete line made by the company.

"Treasure Island"

This is the title of a booklet published by S. F. Bowser & Company, Inc., Fort Wayne, Ind., which treats of filling station design and is actually a well illustrated plan book of filling stations. This company manufactures gasoline pumps and has wide and authoritative experience in this field.

"The Lighting Book"

This is the title of a very handsome bound volume which has been published by Curtis Lighting, Inc., 1119 W. Jackson Blvd., Chicago. It contains very complete information on the history of lighting and chapters on the various types of modern lighting and is a complete book of reference for the planning of practical and artistic illumination for all types of interiors and exteriors. The material was assembled by J. L. Stair, Chief Engineer of the company. Copies are being distributed to architects, consulting electrical engineers and lighting men of standing.

"Modern Lighting"

The Westinghouse Lamp Company, East Pittsburgh, Pa., has just issued Lighting Service News No. 32, under this title, containing nine illustrations of the latest developments in decorative lighting.

Ventilation Data

"The Robertson Ventilation Data Book," published by the H. H. Robertson Co., Grant Bldg., Pittsburgh, Pa., the sixth edition of which has recently been issued, is primarily a handbook of data on the air moving capacity—the ventilating ability—of roof ventilators.

Oil Heating Equipment

Bryan Steam Corporation, Peru, Ind., has issued Catalog No. B5, on "Bryan Copper Tube Boilers—the Original Development of a Combination Oil or Gas-Fired Boiler," and two pamphlets on the economical use of oil heat with its equipment.

General Building Subjects

Rural Buildings

"Rural Buildings for Business and Social Uses" is the title of Farmers Bulletin No. 1622, of the U. S. Department of Agriculture, prepared by Wayne C. Nason, Assistant Agricultural Economist. It contains examples of various rural co-operative buildings of the type that are now being used effectively in many rural communities. It may be obtained from the Superintendent of Documents, Washington, D. C. Price 10 cents.

"Construction Costs, 1910-1929"

This book has been compiled and published by the Engineering News Record, 10th Ave. at 36th St., New York City, and contains tables and charts, cost index numbers, unit prices 1929-1930, labor rates, and prices of materials. Price \$1.00.

Construction Materials

Interior Decoration

The Columbus Coated Fabrics Corp., Columbus, Ohio, has published a pamphlet containing a discussion of "The Important Points of Interior Decoration" by Virginia Hamill, Style Critic.

Colors for Mortar and Cement

C. K. Williams & Co., 634 N. 13th St., Easton, Pa., offers a booklet of its Anchor Brand mortar and cement colors and their use, with samples of the colors available.

Chase Copper and Brass

The Chase Companies, Inc., Waterbury, Conn., has prepared a booklet on the history and organization of the company, and its present equipment and personnel.

"Air Seasoning of Wood"

This is Bulletin No. 174 of the United States Department of Agriculture. It was prepared by J. S. Mathewson, Senior Engineer of the Forest Products Laboratory, Branch of Research. Copies may be obtained from the Superintendent of Documents, Washington, D. C. Price 35 cents.

Factory Finished Flooring.

The Cromar Company, Williamsport, Pa., offers three new booklets, "The Story of Cromar," a reprint of an article in the Ferguson "Cross Section;" "Cromar Factory Finished Oak Flooring" and "Cromar Oak Floors."

"Your Windows"

This is the title of a new booklet from David Lupton's Sons Company, Allegheny Ave. and Tulip St., Philadelphia, Pa., which was prepared to direct attention to the importance of windows in daily life. It is handsomely illustrated with several color plates.

Colonial Woodwork

"Correct Woodwork for the Colonial Home" is a very fully illustrated booklet of the Colonial woodwork products of the Morgan Woodwork Organization, Oshkosh, Wis. It contains many suggestions for making a home architecturally correct.

Waterproofing Concrete

The Medusa Portland Cement Company, 1002 Engineers Bldg., Cleveland, Ohio, has published a booklet on "Medusa Waterproofed Cements—How to Make Good Waterproofed Concrete," which contains much practical information and specifications.

Installing Rubber Floors

The Goodyear Tire & Rubber Co., Akron, Ohio, has prepared a folder of "Specifications for the Installation of Goodyear Rubber Floors Together with Suggestions for Color and Pattern." It includes a number of valuable color plates.

Havemeyer Steel Joists

A very complete catalog booklet, including tabular matter and specifications on Havemeyer steel joists has been published by the Concrete Steel Company, 2 Park Ave., New York City.

Copper Spanish Roof Tile

The Milcor Steel Co., Milwaukee, Wis., has issued a broadside, illustrated in colors on "The Spanish Motif in Roofs as Expressed by Milcor Spanish Copper Tile" and is offering a data book of complete specifications and detailed instructions for erection under the title "The Milcor Architectural Sheet Metal Guide."

What's New in Contractors' Equipment

For further information in regard to any item described in the "What's New" Departments address American Builder Information Exchange, 105 W. Adams St., Chicago

Complete Woodworking Equipment

A DISTINCT advance in the design and construction of its woodworking machinery is announced by one of the well known manufacturers who has recently brought out a combination woodworking machine which does the work of eight separate machines.

A feature of this machine, which is of special interest, is the fact that it may be purchased a part at a time, so that anyone wishing to build up a complete shop gradually, may do so by adding the units as he requires them. Any unit can be supplied separately, and is machined to attach to any other unit without any alteration whatever.



Eight Woodworking Machines in One, the Units of Which Can Be Purchased Separately and Added as Needed.

The units of this machine include a saw table, jointer, band saw, lathe, hollow chisel mortiser, and reversible sander and shaper. The machine operates from an ordinary light circuit outlet. The units can also be supplied equipped with individual motors where single purpose machines are required.

This machine is completely ball bearing equipped and is built strong and rigid with no delicate parts to break or get out of order. The simplicity of its construction assures dependable service. The cast iron frame prevents vibration and warp. The complete machine occupies a floor space five by six feet.



New Truck Meets Tests

TEN thousand miles of continuous driving in two weeks was the final test to which this new 1½ ton truck was put before it was put into production as a member of a well known line. With a 2-ton load, it was driven through mud and sand, up and down the steepest grades, and wide

open along highways, 24 hours a day, with three shifts of drivers. This test was the culmination of three years of experimental work in developing this new truck.

Not only did the test prove the truck to be outstanding in performance, it is stated, but also economical in operation.



The Test Truck Which Demonstrated the Exceptional Performance of This New 1½ Ton Unit.

The entire test run was made without a single breakdown and without overheating. Speed and power proved ample for every need. The tires would have given at least 10,000 miles more wear. The brakes were adequate for perfect control of the 2-ton load at any speed.

At the end of the test, a check of the engine revealed that it had not weakened, valves seated perfectly and valve stems were not warped, compression was excellent, the clutch, transmission and rear axle showed no signs of strain.

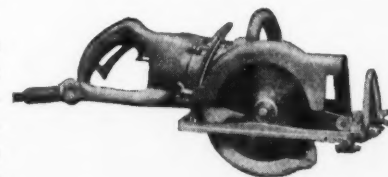


Electric Hand Saw Improved

THE new portable electric handsaw illustrated here has a capacity of 2½ inches and a number of features not usually found in saws of similar size.

At 45 degrees, this saw will cut through full 2-inch lumber. Another feature is the momentary switch with the safety lock. The button at the operator's thumb must be depressed before the trigger will act. This switch makes it impossible for the saw to be accidentally started. The full-trip trigger, a new feature in handsaws, takes strain off the index finger—a more comfortable grip.

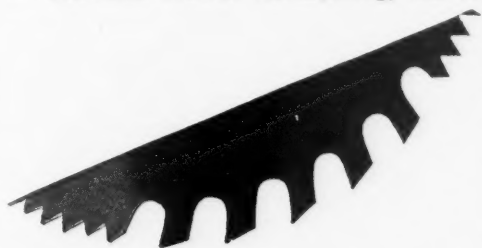
Additional features include a non-shatter glass dust-shield, making it possible for the operator to follow a line with full vision. A rip fence located on the forward part increases the efficiency when making rip cuts. High quality is found in this saw as in all other tools made by this company. Comfortable grip, ease of operation, super-power long life motor, and patented safety devices are outstanding characteristics.



A Number of New Features Are Offered in This New 2½-Inch Capacity Saw.

Saw Blade Cuts Nails

A NEW saw blade which, it is stated, will cut through 100 nails without resharpening, has recently been an-



A New Method of Treating Steel Has Produced This Electric Hand Saw Blade Which Cuts Through Nails.

nounced for use with electric hand saws. The manufacturers of the blade state that a recent discovery has created a new method of heat treating that produces cutting steel of superior quali-

ties, and that many tests have proved the blades made of this steel are all that is claimed for them. In the high speed cutting performed by an electric hand saw, they will rip through both wood and nails and maintain a perfect cutting edge as long as an ordinary blade would hold its edge in clean wood.

A blade of this type is especially useful in the building field where it can be applied with great saving in repairing old floors, cutting and salvaging old lumber, building forms, and in wrecking work.



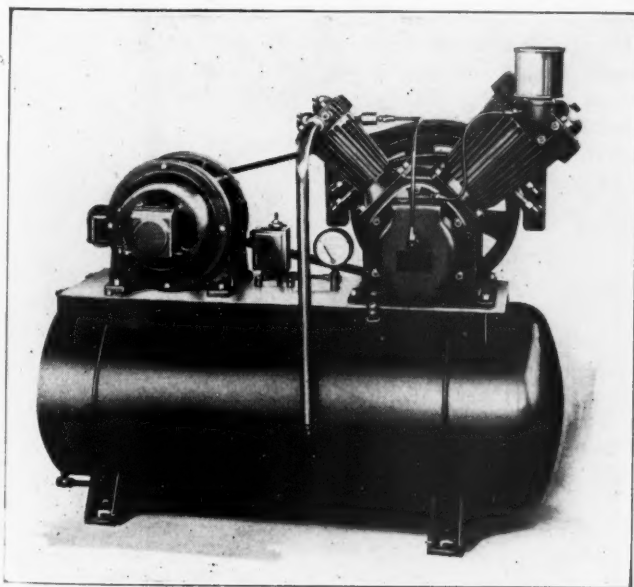
New Air-Cooled Compressors

A NEW line of air-cooled, two-stage air compressors has been announced. V-type belt drive is employed, and both motor and compressor are ball bearing.

The units are self-contained, the motor and compressor being mounted on a steel base, which is attached to the top of the air receiver. This is made of heavy pressed steel. No special foundation is required for correct alignment of the compressor and motor. The compressor is ready to operate as soon as the electrical connections to the motor have been made and the crankcase filled with oil.

Automatic start and stop control, furnished as standard equipment, operates independently, but in conjunction with the unloader. When the pressure in the air receiver reaches a point at which the regulator is set to unload, the motor is automatically shut off.

A self-cleaning air cleaner keeps dirt out of the compressor



One of a New Line of Self-Contained Air-Cooled Compressors Which Incorporate a Number of Improvements.

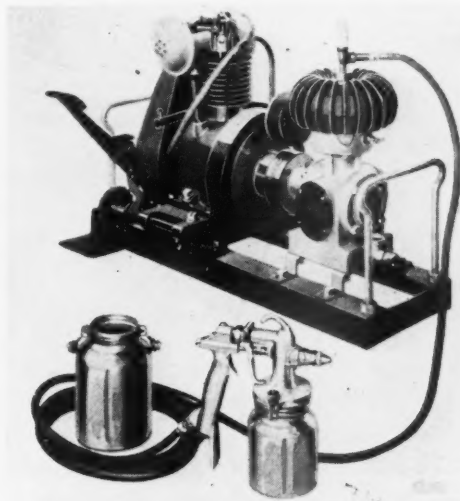
and requires no attention. The compressor is entirely enclosed, and no dirt can get into it to wear out the working parts.

This unit is built in four sizes: $\frac{3}{4}$, $1\frac{1}{2}$, 3 and 5 horsepower. All sizes are built for a working pressure up to 200 pounds continuous duty.



Gasoline Powered Spray Outfit

A WELL known manufacturer of paint spray equipment has announced an addition to its line, for users who prefer gasoline power, or who wish to do spray painting where electricity is not easily available. The new model is compact, perfectly balanced, vibrationless, easy to start and extremely smooth and quiet in operation.



Gasoline Powered Paint Spray Outfit for Use Where Electric Current Is Not Available.

This outfit completely atomizes both light and heavy materials, such as oil and lead paints, lacquers, shellacs, varnishes, and enamels, eliminating excessive fog and mist. The size of spray—the amount of material applied—can be regulated directly from the trigger or by giving a slight turn to the knurled sleeve on the adjustable needle valve. If desired, the outfit can be made simply to blow air for removing dust and foreign matter from the surface about to be sprayed.

While providing unusually high speed application, costs are remarkably low. This model can be operated for better than three hours on one quart of gasoline, it is claimed.



Improved Wrench Sockets

A WELL known chrome vanadium wrench line, although already unusually complete, has been further broadened by the addition of double hexagon, chrome vanadium sockets in a very complete range of sizes. Because of the great strength of the chrome vanadium alloy steel used, it has been possible to design these new sockets with very thin walls. They are covered by a guarantee "to replace, free of charge any wrench which breaks in service."



Because Made of Chrome Vanadium Steel the Strength of These Sockets Is Guaranteed.

Increases Use of Electric Drill

THE owner of an electric drill can now obtain a new, right angle drive attachment which greatly increases the usefulness of his drill, at small cost. It can be used with a fast ratio attachment and saw to cross cut soft pine 50 inches per minute, $1\frac{3}{4}$ inches deep, and will rip soft pine 23 inches per minute.



The New Right Angle Drive Attachment Makes the Electric Drill Available for Sawing and Many Other Uses.

The fast ratio attachment is excellent for sanding and grinding while the slow speed is used for polishing. Either fast or slow ratio may be used for drilling at a right angle and the attachment will handle an $\frac{1}{8}$ -inch bit having a brad point in soft or hard pine.

This attachment is especially handy for working in hard-to-get-at places, boring joists for wiring and similar purposes.

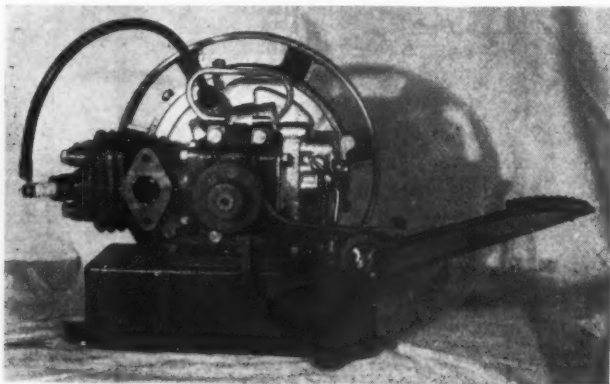


Light Portable Gas Engine

A SMALL, portable, utility gasoline engine for use beyond the range of power lines is now available and will do any work that can be done by a $\frac{1}{2}$ h.p. electric motor. It is extremely simple and dependable.

There are only four moving parts, which are absolutely necessary to the operation of any internal combustion engine, piston, connecting rod, crank shaft and magneto. There are no valves to require timing and grinding, no complicated inlet and outlet system, no cams, cam followers, spring and other moving parts. There is no complicated lubrication system, a small quantity of oil added to the gasoline provides perfect lubrication.

The complete unit weighs only 37 pounds and develops a load horsepower of .432 at 1750 r.p.m. This engine is easily started by means of a convenient foot lever and the flywheel magneto gives reliable ignition service in starting as well as in operation. This engine is a development of many years experience in the manufacture of outboard motors and is of the outboard motor type.



Extreme Light Weight and Reliability Are Features of This Portable Gasoline Engine.

New Truck for Builders

THE accompanying illustration shows a new model truck which is especially well adapted to the requirements of the building field. This truck is of three-ton capacity and is built with a 157-inch wheelbase. The front axles are of I-beam steel. The rear axles are full floating double reduction type with tapered roller bearings.

The equipment of the chassis is unusually complete and modern. The indirectly lighted instrument board contains ignition and lighting switches, ammeter, gasoline gauge, oil pressure gauge, choke control and speedometer. The complete electrical equipment includes head lights, cowl lights, tail light, horn, starter and generator with battery under the floor board.



This New 3-Ton Truck Is Particularly Adapted to the Needs of Builders and Material Dealers.

The fully enclosed coupe type cab, shown in the illustration, is designed and built by the manufacturing company to provide new and more reliable standards of durability, comfort and good appearance. All standard bodies are available and blueprints of special body designs will be furnished on request.



Versatile Floor Machine

THIS machine performs all the necessary functions of an efficient floor machine, at a moderate price. It scrubs, scours, sands, polishes and waxes automatically, all kinds of floors. It is useful on hardwood, linoleum, tile, porch floors. Weighing less than 16 pounds, it can be carried easily up and down stairs wherever it is needed, is operated as easily on any type of floor as a vacuum cleaner.

The dual brush action which operates at 650 R.P.M. distributes the wax evenly and works it into the pores of the wood in the proper manner to preserve and keep the floors in a state of constant beauty. The polishing is quick, thorough and efficient.

By using the wire brushes, and sanding disc accessories, old floors can be refinished with a minimum of expense so that the machine becomes a saver of labor, time and money for the contractor.



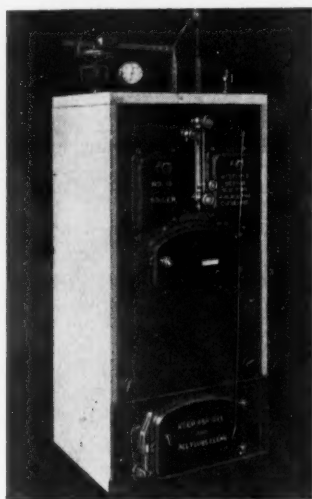
A Light, Inexpensive Machine for Sanding, Scrubbing and Waxing Floors.

What's New in Equipment for Buildings

For further information in regard to any item described in the "What's New" Departments address, American Builder Information Exchange, 105 W. Adams St., Chicago

Quality in House Heating Boilers

THE illustration shows a new house heating boiler which has been produced, after three years of research, by a company having 75 years experience in the field, as the highest quality boiler that could be designed.



Attractive Appearance and Highest Efficiency Are Combined in This Heating Boiler.

This new boiler is unusually large from the bottom of the fire door to the grates assuring long firing periods, less care and attention to the boiler, which is particularly noticeable in burning coke.

A large combustion space in the furnace after the fuel is charged and special air intake holes scientifically placed close to the surface of the burning fuel provide for efficient combustion.

The most vital factor in the quality of this boiler, it is stated, is the firebrick lining, similar to that used in power plants, which assures complete combustion and 100 per cent effective grate area. There is also an abundance of heating surface for absorbing the heat with the greatest efficiency.

A large amount of asbestos is used under the jacket to preserve the heat so that it will all reach the radiators. These boilers are suitable for use with steam, hot water or vapor heating and are equally efficient when coal, coke, oil or gas is used as fuel.



Radio Control for Garage Doors

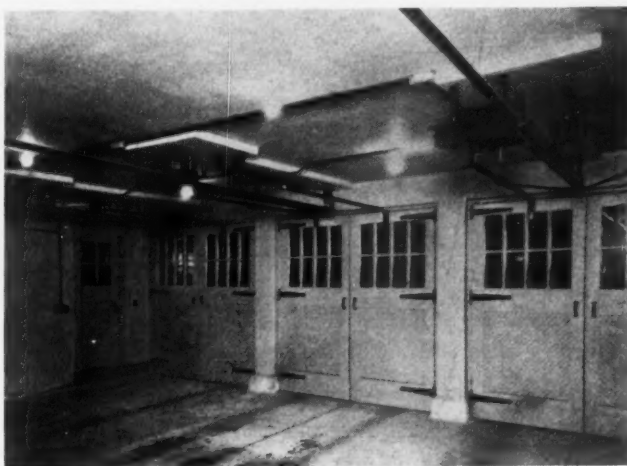
RADIO control for garage door operators is one of the latest conveniences for the home owner. With this device installed the car owner merely pulls a knob on the instrument board of the car as he approaches the garage. The garage doors open and the garage lights are lighted and he drives in without stopping or getting out of the car.

Such a control consists of a transmitter installed in the automobile, and a receiving unit installed in the garage, and connected with the door operating mechanism.

When the knob is pulled a series of radio impulses are sent out and are received by the unit inside the garage. These impulses are utilized to start the operating motor. The receiving set is adjusted to operate only at a certain series of impulses so that no car but the proper one can open the door. Such a large number of combinations are possible that each installation can have its own series.

The operating mechanism is designed to stop the door accurately at the end of the closing stroke so that the door is completely closed without slamming. When the door is closed the operator locks it automatically. There is a reliable

safety device which disconnects the operator drive if the door encounters an obstruction, protecting the door, the operator and the person or object obstructing the door. In case the power supply is cut off the doors can be unlocked, opened, closed and locked by hand without adjustment.



The Last Word in Convenience Is an Automatic Garage Door Opener Controlled by Radio from the Instrument Board of the Car.

These door operators are made in types adapted to the operation of all the common types of garage doors, folding, swinging, sliding and overhead, taking care of about 90 per cent of all doors.

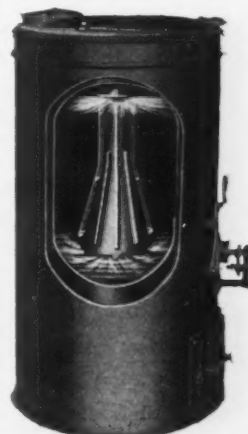


Noiseless, Odorless Incinerator

THE difficulty of rubbish and garbage disposal has been greatly increased by the growing use of gas and oil fired heating systems. Even where regular garbage disposal is provided by the city the rubbish problem remains and the unsightly and unsanitary garbage can is an inconvenience no longer accepted by housewives. For this reason the incinerator has become an essential part of the home equipment.

The incinerator illustrated here is a recent development which is both noiseless and odorless in operation. It will burn all types of rubbish and garbage, wet or dry, to a fine ash. It is commonly installed with a receiving door in the kitchen from which the waste is chuted directly to the incinerator, saving many steps for the housewife.

Installation, in either new or old buildings and houses, is very simple. There is a full range of sizes available, suitable for the smallest cottage or house, the apartment building or the largest hotel.



A Noiseless, Odorless Incinerator in Sizes Suitable for Any Home, Apartment Building or Hotel.

Mirror Has Adjustable Lights

POOR lighting of bathroom mirrors is one of the greatest and most common inconveniences in homes today. There are thousands of families who would be delighted with a home in which the bathroom mirror was properly lighted. The specialty illustrated here should be a strong selling feature of any home in which it is installed.



Light Which Slides to Any Position in Slots Around the Mirror Gives Perfect Lighting.

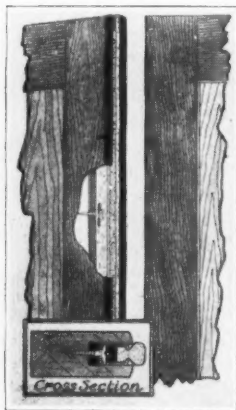
Here is a bathroom cabinet, or merely a mirror if preferred, which has slots along the edge of the mirror. In these slots are electric light brackets which slide to any desired point. In this way the light can be placed just where it is needed. There are no exposed wires and nothing to require care or cause trouble.

The cabinet is of heavy gauge, welded steel. The doors are die-cast white brass, the lamp brackets are chromium plated and both boxes and doors are lacquer finished. The units come completely wired and assembled and are easy and inexpensive to install. Only one electric outlet is required. A variety of color combinations is available. The mirrors are of selected plate glass.



Weatherstrip for Double Doors

WEATHERSTRIPPING double doors has always presented a difficult problem to the builder. It has now been solved, however, by the simple but effective type of weatherstrip shown in the illustration. This weatherstrip consists of a strip of felt tightly gripped in a galvanized steel container and securely riveted, making a fastening that can not slip.



These Cut-Away and Section Drawings Show How Double Doors Can Be Effectively Weatherstripped.

A groove slightly more than $\frac{3}{8}$ inch wide by one inch deep is made in one of the door edges and the strip is fastened into the groove by means of screws which are a part of the strip. These screws are forced into place before the felt is put in and riveted. The screws have heads equal in diameter to the entire thickness of the strip and, when the strip is riveted, the screw heads reach through slots on either side of the strip.

Because of this construction, when the screw is turned, the head acts against the metal of the strip drawing the strip into the slot or pushing it out. In this way it is possible to adjust the strip so that the felt completely closes the space between

the doors. The screws are placed 18 inches apart making possible adjustment at any point along the door. The correct adjustment will exclude all light and yet is so delicate that there is no undue resistance in opening and closing the doors. The strip may be used anywhere around door or windows where it is practical to make the groove.



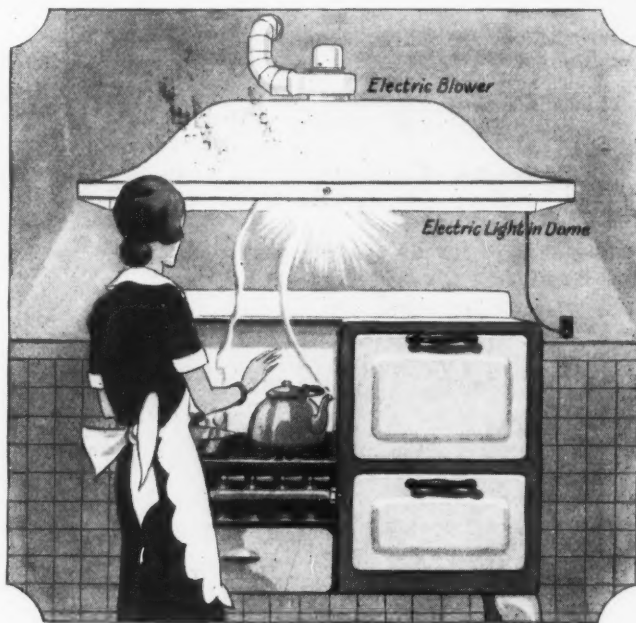
Modern Kitchen Ventilation

THIS new type of kitchen ventilator, which is highly efficient, low in cost and easily installed in any dwelling either old or new, offers interesting possibilities for the builder of homes.

This ventilator is designed on the principle that the correct place to capture kitchen odors, smoke, grease and heat, and remove them from the kitchen, is at their source. It consists of a copper steel alloy dome, finished in lacquer which resists the action of steam and grease without flaking or losing luster. The dome is suspended over the kitchen range and does not occupy any space which would be usable for other purposes.

The dome is connected with the flue by a copper-steel pipe and elbow. Inside the dome there is an electric motor operating a blower. The blower removes all heat, steam, smoke and grease directly without creating a draft and without drawing them across the room and allowing grease to settle on walls in passing. The motor is silent and does not interfere with radio reception. It takes current from an ordinary wall outlet for which purpose eight feet of cord and a plug are provided.

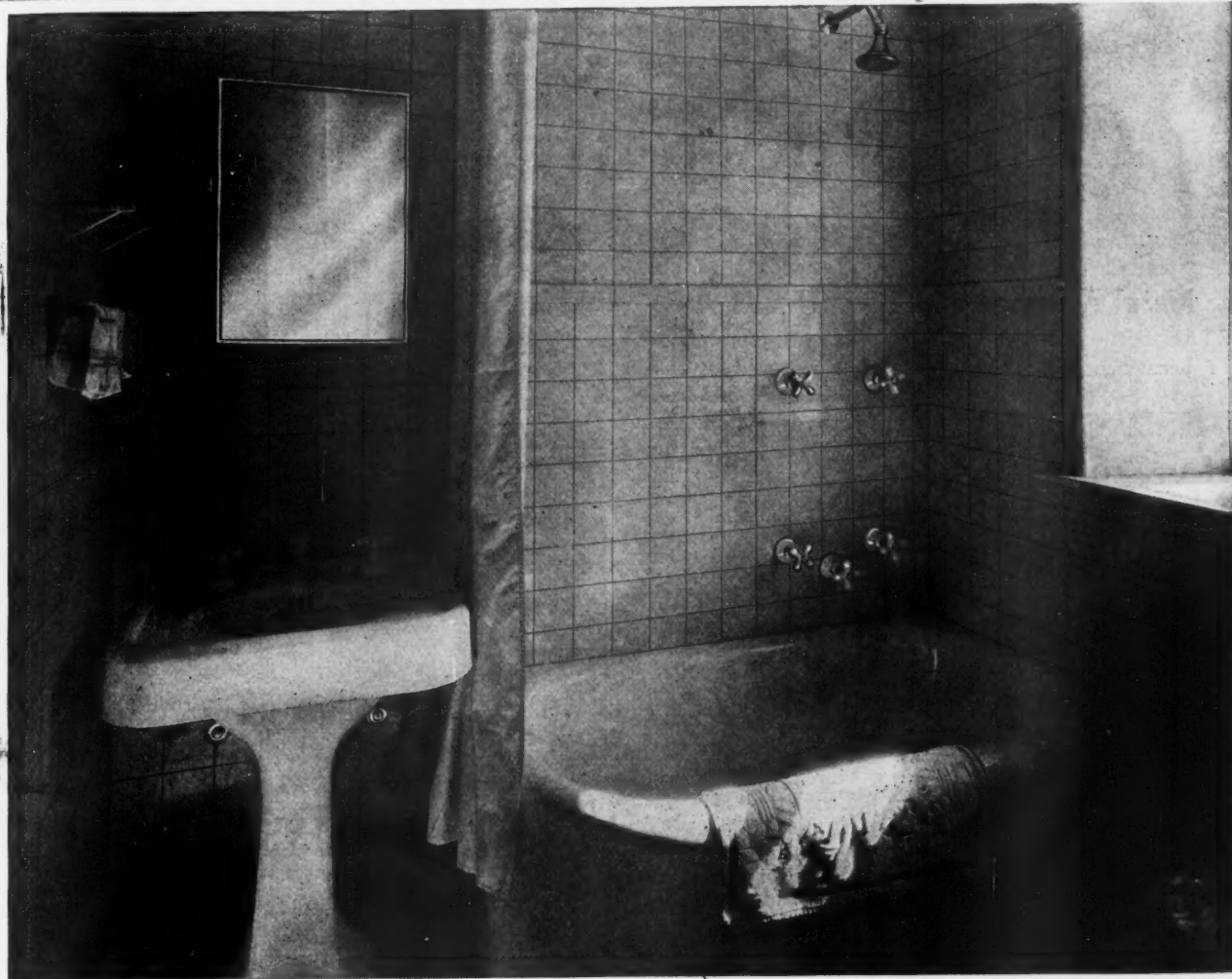
For installation, no structural changes are necessary. The dome is screwed to the wall with round headed nickel-plated screws. No struts are required. The flue connection is by a three-inch pipe and elbow which anyone can make. The whole installation requires but a few minutes and does not require special labor.



All Kitchen Odors, Steam, Smoke and Grease Are Removed Without Being Drawn Across the Room to Stain the Walls.



"The Dwelling House Listing and Estimator" is a handy booklet developed by Louis Brandt, Housing Engineer, of Pittsburgh, for the use of the contractor and builder. By using it, a detailed estimate of material and labor may be had for every job, whether remodeling, repairing or building. Columns are provided for the listing and estimating of every item entering into the construction of a home. Price, \$1.00.



For that Remodeling Job You're Figuring Why Not Waltile ?

You don't need new building work to be sure of a steady income. Investigate the profit possibilities of installing Ambler Asbestos Waltile, the new decorative wainscoting material furnished in sheets, with a choice of seven colors.

These sheets are made of Asbestos and Cement, finished at the factory in beautiful permanent tints—a surface which is fadeproof, stainproof, fireproof and easily cleaned.

When you are asked to estimate on a remodeling job get prices on Waltile for the bathroom, kitchen, pantry or laundry. Write us today for a folder which you can show your prospect, also a sheet giving recommendations as to the application of Waltile. There's a handy coupon on this page.

AMBLER

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Please send me the WALTILE leaflet
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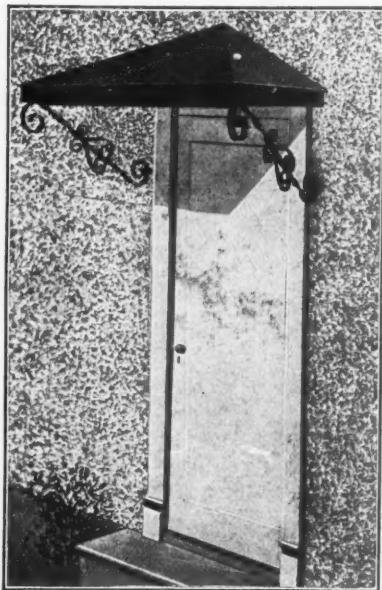
AB

What's New in Construction Materials

For further information in regard to any item described in the "What's New" Departments address, American Builder Information Exchange, 105 W. Adams St., Chicago

Metal Awnings and Door Hoods

METAL awnings, or hoods, for doors and windows are a permanent, all the year around protection which



Metal Hoods or Awnings, for Doors and Windows, Permanent, Attractive and Practical.

offers a number of distinct advantages that will be appreciated by the prospective home owner. In the first place, they afford a protection, when placed over the door, for anyone who is trying to open the door with his arms full of bundles and the rain pouring down. And they keep the rain from blowing in when the door is opened.

In the same way they protect the windows during a storm, permitting plenty of ventilation without allowing the rain to blow in. They also serve as a shade against heat of the sun in hot weather, and a protection against drafts in cold weather.

Besides these points these awnings, to a surprising degree, save the doors, windows and frames from deterioration and replacement. The finish of the door or window is protected, it is not so likely to swell and stick, and snow and ice are kept from accumulating.

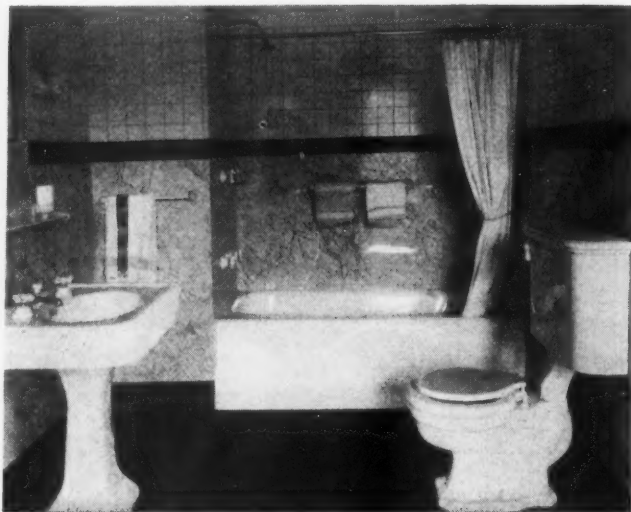
These awnings or hoods are made of heavy, galvanized, sheet steel. They do not require painting, but may be painted in any style desired if so ordered. The brackets, bolts and nails are rustproofed. They will fit any standard door or window and are easily and quickly installed, on frame, brick or stucco houses. They will last for 15 or 20 years without any attention and if properly cared for will last as long as the house.



Marble-Like Asbestos Cement

MARBLE as a building material is universally known and accepted, but it is not always practical to use because of its cost. There is, however, an asbestos cement material with a finish so nearly like marble that the difference can hardly be distinguished which is available at 1/4 to 1/10 the cost of marble, it is stated. This material is widely used for bathrooms, kitchens, hallways, showers, foyers, theaters, restaurants, lodges, clubs, churches, banks, stores, offices, store fronts and similar purposes.

This material comes in sheets 32 by 28 inches and is 3/8 of an inch thick. It can be cut with a hand saw or with an



This Asbestos Cement Material Can Hardly Be Told from Marble, Is Inexpensive and Has a Wide Range of Application.

electric hand saw with carborundum wheel, to any desired size or shape. It can be applied easily and quickly by any carpenter and is attached to the wall either with wood screws or nails, or with a special plastic compound.



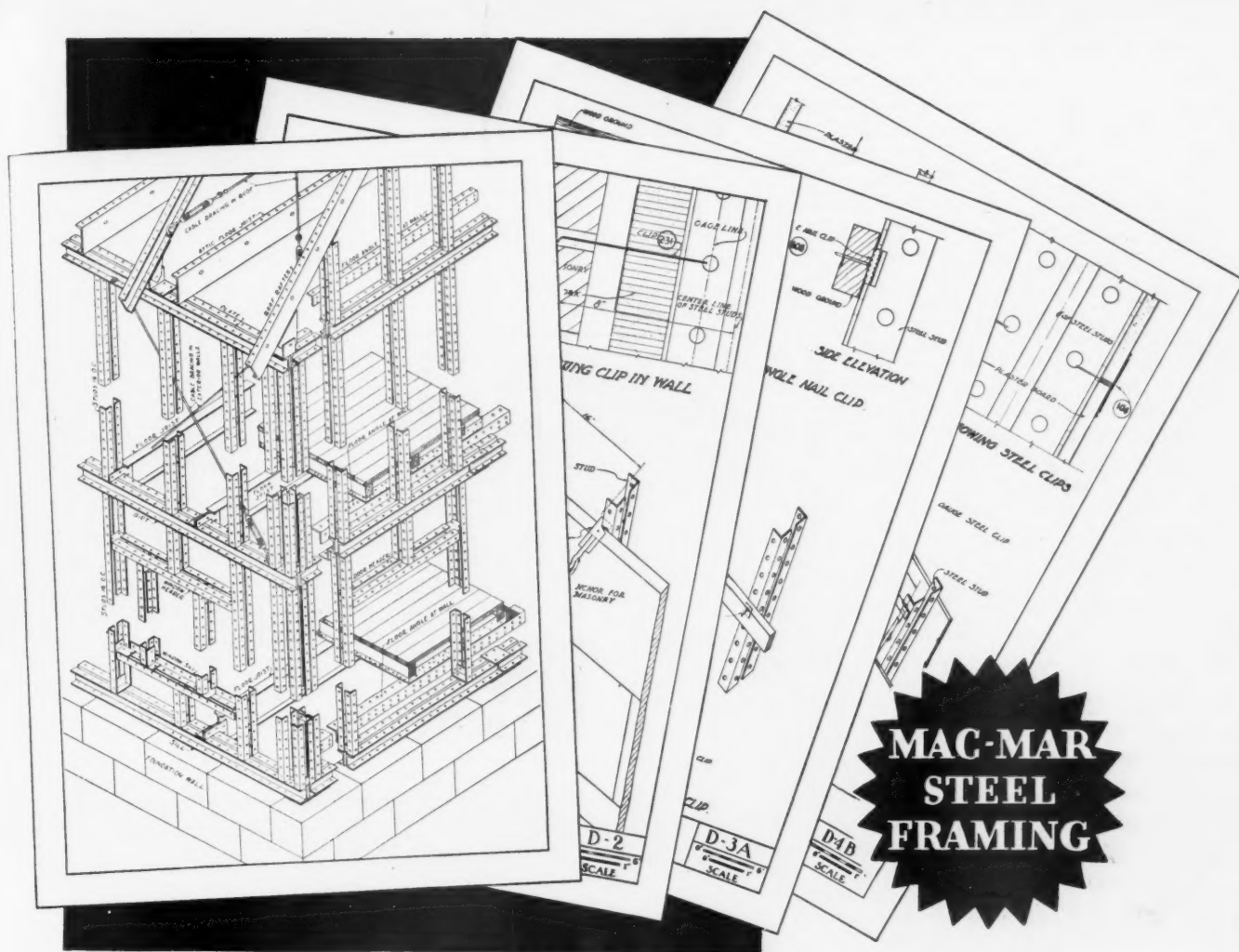
New Mortise Bolt Lock

THE new mortise bolt lock shown here is similar in operation to ordinary thumb turn mortise bolt, with a 1/2-inch steel projecting bolt having a 3/4-inch throw. In addition to the regular thumb turn it has, on the outside of the door, a wafer tumbler cylinder, operated by the cylinder key, so designed that the proper key must be inserted in the lock and pushed all the way in before the bolt can be operated. The cylinder is set up to 500 different key changes and may be master keyed.

This new lock is particularly adapted to installation on inside doors where a thumb turn is desired on the inside, garage doors, and in many other places where night latches and mortise locks are now employed. The lock is reasonably priced. It is easily installed, a template being furnished with each lock. For mounting it is only necessary to drill round holes. No mortising is required.



This Lock Offers Double Protection But May Be Master Keyed.



Architects and Builders Manual

Forty-eight pages of illustrations of details of construction in connection with the use of Mac-Mar Steel Framing have been put into a book which everyone interested in the building of modern residences should have.

The application of insulating boards and plaster grounds; various proved methods of

building floors, ceilings and roofs, the details of doors, windows, dormers, porches and mantels, the installation of pipes and wiring, are illustrated.

This book will answer many questions which may occur to you in connection with steel framing.

Write for it today.



STEEL FRAME HOUSE COMPANY

Subsidiary of MCCLINTIC-MARSHALL CORPORATION

Oliver Bldg., Pittsburgh, Pa.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

New Plaster Wall Finish

UP to this time, the process of texturing and coloring walls has been rather slow and laborious unless the texturing was done with a special paint compound troweled and textured over the plaster finish coat after it had set. When the plaster, itself, was textured, the quickest and easiest way was for the plasterer to pull the float away from the wet plaster so that the suction created a rough or antique finish. A wide variety of textures was possible with other tools and methods.

This was only the first step, however, and the wall, afterwards, had to be successively sized, tinted and sponged, if a two-tone effect was desired. The new colored composition requires only the addition of water and it is ready to be troweled over the brown coat. The color is ground into the material at the mill, great care being taken to secure absolute uniformity. The colors are cream, buff, gray, blue, green and rose.

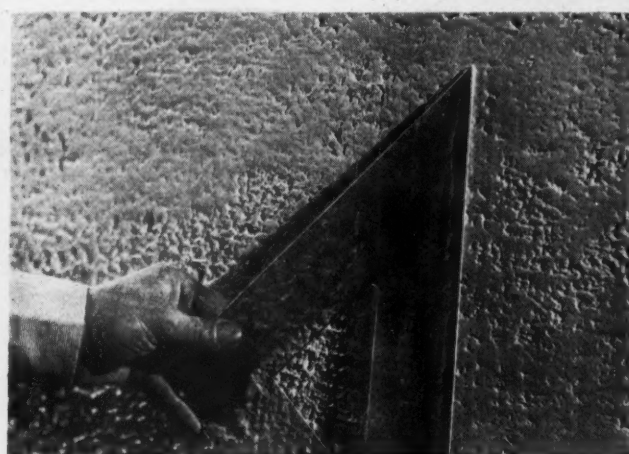
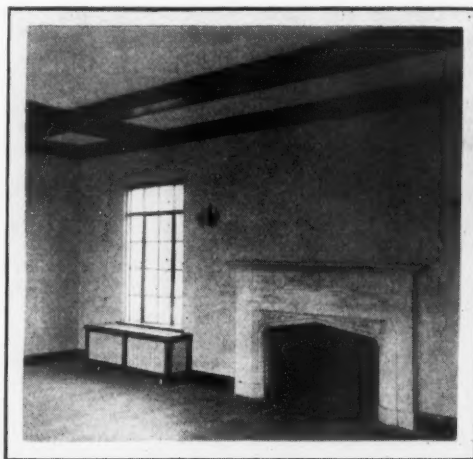
There are several advantages in connection with this new material for both builder and home owner. First, is the saving in time and labor. The value of the time factor increases as a building project approaches completion. Therefore, the time lost formerly in sizing and tinting walls was both an annoyance and extra expense to builders.

With this new color plaster, which spreads smoothly and is easy to texture, the decoration is complete as soon as the plaster sets. The advantage to the owner is that he has extra beauty in his wall finish and, furthermore, if accidentally chipped by a hard blow, the wall will not have a marred appearance, for it will not show white, the color being all the way through. If two-tone effects are desired, pigmented sands or dry colors are furnished, to be blown over the textured wall while it is still wet. A bellows is furnished for this purpose.

The two-tone effects procurable in this way are very fine. For instance, a cream or buff tinted wall is given a rich finish with a little gilt finish blown over it, the gilt adhering only in the texture depressions. This gilt is restrained in its effect, as it will only show where the light glints on it. Many other equally pleasing combinations are possible.



The Relay Motors Corporation, Lima, Ohio, has now issued the booklet "Trucking Costs—and How to Lower Them" in permanent binding. This book, compiled by L. A. Graham, contains charts and diagrams which analyze transportation costs, and should be helpful to the motor truck owner in decreasing his transportation costs.



The Finer Texture Effects Now in Vogue Can Be Secured in This New Color Plaster with Surprising Ease. Pictures at upper left and upper right show a brush stipple and its partial smoothing down. A draftsman's triangle makes an excellent tool for this purpose. A picture at lower left illustrates the splendid Travertine effect gained with this new product and a whisk broom wave at the right. Above, a finished room.



FREE BLUE PRINTS

AND FREE BOOK "HOW TO READ BLUE PRINTS"

Show You The Way To

9 BIG PAY JOBS

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This is no ordinary "school course." It is practical from start to finish. It is based on many sets of real Blue Prints—plans that would cost thousands of dollars if purchased from the architects. Twenty famous experts in all lines of construction work talk over these Blue Prints with you in plain, simple language. Show you every detail. Explain every short cut. Tell you the "secrets" of quick, accurate estimating. Explain superintending. Give you for the first time many inside facts and money-making methods used by the "giants" of the Building Industry.

IF YOU LIVE NEARBY

Visit our big day or evening school attended by over 1,000 Builders. You can get the same training at home by mail—same plans, lessons and instructions. Your spare time is enough.

Chicago Technical
SCHOOL for BUILDERS



Dept. M-123, 118 East 26th St., Chicago, Ill.

NO EDUCATION NEEDED

This is the kind of training that quickly puts men into \$4,500 to \$12,000 a year jobs—or into profitable contracting businesses of their own. Yet now you get it right at home in only 2 or 3 months. It requires no extensive education. If you can read and understand what is written here you can easily master it.

See what this training has done for others: Bartholomew, Calif., became a contractor at an increase of over 300% his first year; Blair, Okla., stepped up to Superintendent at 100% increase; Dickerson, R. I., increased his salary 700% in 12 months; Marchand, La., says: "My income has increased 200% and I now have more contracting work than I can do."

AMAZING OPPORTUNITIES

Over seven billion dollars will be spent this year in new construction! No wonder, then, such tremendous opportunities are open to you when you have this "head-work" training in Blue Prints.

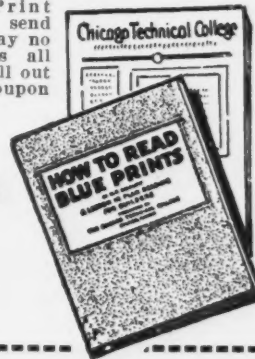
If you want more money—real big money—then choose a "Blue Print" job in Building. Here is the one field where there are unlimited opportunities for advancement.

MAIL COUPON TODAY

So accept my FREE gift of a complete set of real working Blue Prints and my

fascinating Book "How to Read Blue Prints" that tells all the interesting and instructive facts about Blue Print Plans. Don't send one penny—pay no C. O. D.—it's all FREE. Just fill out and mail the coupon today—NOW!

TWO BOOKS also FREE



Chicago Technical School for Builders,
Dept. M-123, Chicago Tech. Building,
118 East 26th Street,
Chicago, Ill.

Please send me your free book, "How to Read Blue Prints," and complete set of real Blue Prints. I understand these are mine to keep without obligation. It is also understood that no salesman will call on me.

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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

News of the Field

Convention and Show Dates

- Oct. 13-17, 1930—American Gas Association, Annual Convention, Municipal Auditorium, Atlantic City, N. J.
 Oct. 20-22, 1930—Concrete Reinforcing Steel Institute, Semi-Annual Meeting, Briarcliff Lodge, N. Y.
 Oct. 22-24, 1930—National Retail Lumber Dealers' Association, Palmer House, Chicago.
 Oct. 28, 1930—American Institute of Steel Construction, Inc., 8th Annual Convention, Pinehurst, N. C.
 Jan. 10-16, 1931—American Road Builders' Association, Annual Convention and Road Show, St. Louis, Mo.
 Jan. 15-17, 1931—National Association of Real Estate Boards, Annual Mid-Winter Meeting, St. Petersburg, Fla.



Tallest Welded Building

A 100 PER CENT electrically welded building 19 stories high, the tallest yet to be undertaken, is now being constructed for the Dallas Power & Light Company in Dallas, Texas. The new structure will be used as an office building.

Steel fabrication and erection is being done by the Mosher Steel & Machinery Company, using General Electric welding equipment. Lang and Witchell are the architects, and R. L. Rolfe is structural engineer for the building. Frank P. McKibben has been retained as consulting engineer in connection with the welding.

Dallas is the largest city in the United States to sanction, in its building code, the use of welding in the construction of buildings. So far, 79 cities are known to have adopted codes which allow welding.



Head of Reading Iron Resigns

THE resignation of Leon E. Thomas, president of the Reading Iron Company, was accepted at a regular meeting of the Board of Directors of the company, held in Philadelphia, July 31, 1930. In a special meeting of the stockholders of the company, the office of Chairman of the Board of Directors was created.

A. J. Maloney, president of The Philadelphia and Reading Coal and Iron Company, of which company the Reading Iron Company is a wholly owned subsidiary, was elected chairman of the Board of the Reading Iron Company, and will assume the executive duties of the president of that company until a successor to Mr. Thomas is appointed.



American Stove Reorganizes Sales

THE American Stove Co., 233 Chouteau Ave., St. Louis, Mo., has announced a complete change in the organization of its selling and distribution methods, in order to bring about a closer contact between the company and its dealers and consumers. The six divisions of the company will hereafter be manufacturing divisions only. The United States and Canada will be divided into seven districts with a sales headquarters and manager in each.

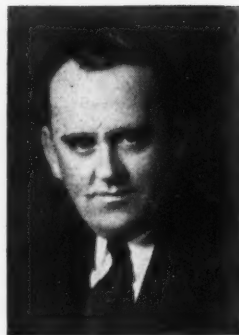


Badeaux Joins Simmons Millwork

W. H. BADEAUX has joined the organization of Simmons Millwork, Inc., of Minneapolis, Minn. His place, in charge of Chicago Mill & Lumber Corporation's northwest district, has been taken by M. C. Jensen, formerly supervisor of Weatherwood sales in the New York zone for that company.

Personnel Announcements

JAMES D. ROWLAND, formerly general manager of the Andersen Yard Company, has been appointed general sales manager of the Andersen Frame Corporation, of Bayport, Minn., according to an announcement made by Fred C. Andersen, president of the corporation. Mr. Rowland will fill the vacancy created by the resignation of R. L. Nash, vice-president.



James D. Rowland,
Salesmanager of the
Andersen Frame
Corp.

A. H. SCHAFFERT, manager of the Turscon Steel Company's main plant at Youngstown, Ohio, has been appointed vice-president of the company.

PAUL R. CLARK, formerly president of the Fireproof Products Company, has been appointed New York district manager of the Genfire Steel Company, with offices at 31 Union Sq., New York City, and 605 Broad St., Newark, N. J.

MR. R. E. BROOKS, for a number of years engaged in the equipment business in New York, was recently elected vice-president of the National Equipment Corporation, and will be in charge of sales.

THE Truscon Steel Company announces the appointment of W. R. England to be manager of the Birmingham district, with offices located at 513 North 21st Street, Birmingham, Ala. This office has a complete service personnel and local warehouse.

MR. J. H. BELKNAP was recently appointed to the position of manager of Control Engineering Department of the Westinghouse Electric and Manufacturing Company at East Pittsburgh. He succeeds Mr. E. B. Newill who resigned to become Assistant to the President of the Delco Products Company, a subsidiary of General Motors Corporation. Mr. Newill will also be a member of the engineering development of the recently formed company that will manufacture radio sets under the license of the Radio Victor Corporation.

The Westinghouse Company also announces the appointment of Mr. D. G. Nesbit as exterior lighting specialist for the Buffalo office.

AT a meeting of the Board of Directors of the Standard Sanitary Mfg. Company, held on January 31st, Mr. Ahrens resigned as president and was elected to the position of chairman of the board. Mr. Henry M. Reed was elected president and chairman of the executive committee, and Mr. Theodore E. Mueller was elected first vice-president and vice-chairman of the executive committee and continues in charge of manufacturing. Mr. George Herth was elected director and vice-president and general manager of sales to fill the place of Mr. Robert E. Sargent, resigned.

MR. WILLIAM A. SALE, assistant sales manager of W. & J. Sloane Manufacturing Company, in charge of linoleum sales, was elected a director of the corporation at the annual meeting of the Board of Directors.

BALLOONS

ARE BRINGING DOWN
CONSTRUCTION
HAULING COSTS

It was a big event for truck owners when Goodyear developed truck balloons.

Now that trucks are built for speed, these newest Goodyear tires deliver all the advantages to trucks which balloon tires brought to passenger cars.

Because they absorb the jolts, they protect the truck mechanism—reduce vibration—bring down maintenance and repair costs. They protect the load from jars—

they enable trucks to cover more miles per day, make more deliveries per day, because they travel faster, hold the road on curves, and provide greater traction on or off the pavement.

And beyond all that, these new Goodyear Truck Balloons make the tire cost per mile lower than it has ever been under similar operating conditions. They stand up under the heat of fast driving — they decrease tire injuries

that cause road delays — they roll softly over bumps that would break down many a high pressure tire.

When you get balloon tires for your trucks, get the originals. Goodyear pioneered and perfected truck balloon tires — and Goodyear Truck Tire Service Station Dealers have the advantage of the greatest balloon truck tire experience in the tire industry.

ON YOUR NEW TRUCKS, SPECIFY GOODYEARS

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Curtis Lighting Award

AN annual award, to be known as the Augustus D. Curtis Award, will be made by the National Electric Light Association, 420 Lexington Ave., New York City, to the individual or individuals, in any member power company of the association, that contributes most to the advancement of the electric lighting of interiors and exteriors of the commercial and public buildings.

The award consists of a certificate to the company, and \$500.00 in gold to the person in the company, responsible for the achievement. The award will be made for accomplishment within the calendar year, including the present year, and exhibits must be filed with the association before April first of the following year. Announcement of the winner will be made at the annual convention of the association.



Personnel Announcements

THE Kalman Steel Company, 410 North Michigan Avenue, Chicago, announces the election of Mr. Paul J. Kalman, chairman of the board of directors, Mr. George E. Routh, Jr., president, and Mr. A. P. Clark, vice-president in charge of sales.

THE A. M. Byers Company, as a further step in its program of general expansion, has announced the appointment of the following additions to its sales organizations: D. S. Sampson, assigned to the New York office, R. C. Hamlett, assigned to New Orleans, Irwin P. Young, with headquarters at Chicago.

THE Universal Atlas Cement Company, a subsidiary of the United States Steel Corporation, announces appointments in its sales department as follows: O. H. D. Rohwer, formerly division sales manager of the Universal Atlas Company, is appointed an assistant general sales manager, A. C. Cronkhite, who has been assistant general sales manager, continues in that position. N. A. Kelly, previously sales manager at New York for the former Universal Portland Cement Company, is appointed to the same position with the enlarged organization. A. O. Stark, appointed assistant sales manager at New York for the Universal Atlas Company, was connected in a sales capacity with the former Atlas Company for more than twenty years, and William A. McIntyre, for eleven years a sales executive for the former Atlas Company, has been appointed to direct the sales forces working out of Philadelphia for the Universal Atlas Company.

THE Stanley Works, New Britain, Conn., announces the appointment of Mr. Gerald M. Coholan as manager of the Philadelphia office and warehouse, which services Maryland, Delaware, Washington, D. C., and all of Pennsylvania with the exception of the city of Pittsburgh.

Mr. Frank E. Marvin has been appointed district sales manager of hardware for the New England Division, with headquarters at the main office in New Britain.



Gypsum Association Opens Office

THE Gypsum Association, the recently organized association of gypsum manufacturers, announces the opening of its offices at 211 W. Wacker Drive, Chicago. Henry J. Schweim, development engineer of the United States Gypsum Co., has been appointed acting-secretary.



Insulating Lath Named Bi-Flax

THE new combination metal lath and insulating board, recently announced by the Flax-li-num Insulating Co., St. Paul, Minn., has been named Bi-Flax. The name was selected from several hundred submitted in a contest con-

ducted by this company to secure a suitable name. Aloysius W. Bayer, architect, of Eau Claire, Wis., won the first prize of \$100 offered to the architect, contractor or dealer suggesting the best name.



To Study Architecture

IN order to create a better understanding of the mutual problems of the architect and illuminating engineer, arising from the modern use of exterior lighting of buildings, the Illuminating Engineering Society, 29 W. 39th St., New York City, has arranged for a course in the fundamentals of architecture, for illuminating engineers. It will be held from September 8 to 12, inclusive, at the Art Institute, Chicago.



Test Co-operation Plan

ASCHEME of systematic co-operation between employees and management, similar to the famous plan in operation for some years on the Baltimore & Ohio Railroad, has been adopted by the Yeomans Brothers Pump Company, of Chicago, and the International Association of Machinists.



Books, Bulletins and Catalogs for You

THE literature and publications listed here are available to the readers of *American Builder*. They may be obtained from the firms mentioned and will be forwarded without cost except where a price is noted.

The Associated Metal Lath Manufacturers, Chicago, have published "The Partition Handbook" by Erwin M. Lurie, Civil Engineer, which includes discussions of various types of partitions from many standpoints, and a great deal of information on sound insulation, especially. Part I is devoted to "Properties of Partitions" and Part II to "Construction Methods and Details." Price, \$1.00.

The Upson Company, Lockport, N. Y., has published a very handsome and informative booklet by Henrietta Murdock, Consulting Decorator and Colorist of the Upson Studio of Decoration and Color, under the title, "Distinction in Home Decoration."

The Segal Lock & Hardware Company, Inc., 159 Leonard St., New York City, has issued a catalog presenting its locksets and builders hardware. Especially featured in this catalog are the Segal jimmyproof door hardware and locksets.

"Facts and Figures About Steel Construction" is the title of the booklet put out by the American Institute of Steel Construction, Inc., 200 Madison Avenue, New York, of which the second edition is now being published. This interesting booklet gives much valuable information on the subject including a glossary of terms used in construction. Price, 50 cents.

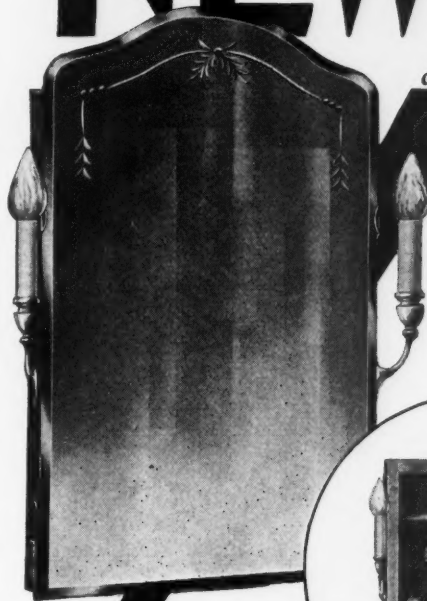
The James Clark, Jr., Electric Company, Louisville, Kentucky, has issued its catalog No. 32, giving complete data and specifications on its electrically driven tools, appliances and attachments.

"Roofs of Blended Beauty" is the title of a new booklet offered by the Philip Carey Company, Lockland, Cincinnati, Ohio, illustrating in color the many color effects achieved with this company's blended asphalt shingles.

"The Ford Model A Car," by Victor W. Page, has been published by The Norman W. Henley Publishing Co., 2 W. 45th St., New York City, and is a practical, up-to-date treatise on the construction, operation and repair of the Ford car, explaining the principles of all parts. Price, \$2.00.

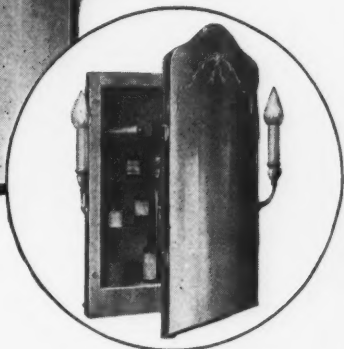
"You Can Make It, Vol. 1" is a booklet prepared by National Committee on Wood Utilization of the U. S. Department of Commerce, showing the practical uses of secondhand boxes and odd pieces of lumber. It can be obtained from the Government Printing Office, Washington, D. C. Price, 10 cents.

NEW



Thousands
already in use

Passed by
the National
Board of
Fire Under-
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The ELECTRO- KABINET (Eight Recessed Models)

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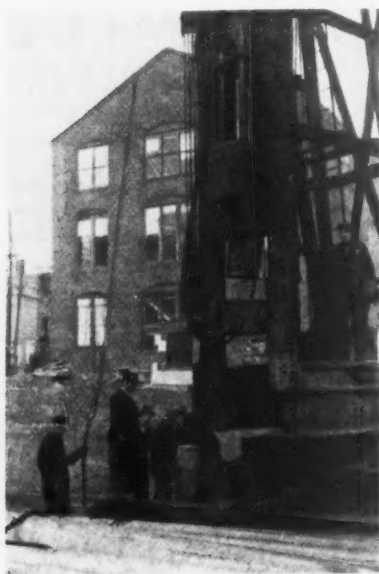
STEEL & IRON CO.

1330 Edgar St.
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Hollow Concrete Piling

THE 11-story General Engineering Laboratories building, now under construction for the Westinghouse Electric & Manufacturing Co., at East Pittsburgh, Pa., is supported on a new type of concrete piling. This piling is manufactured



The New, Hollow Concrete Piling Driven by a Steam Hammer, Showed No Spawling or Booming.

by the hollowspun or centrifugal process, in exactly the same manner as the hollowspun granite columns used as supports for street lighting units and trolley wires.

The hollowspun piles are approximately 20 feet long by $9\frac{1}{2}$ inches in diameter at the small or point end, and $14\frac{1}{2}$ inches in diameter at the large or butt end. They were driven to bed rock, which lay from 20 to 25 feet below the surface, with a large steam hammer. The terrific blows delivered by the hammer caused practically no spawling or booming at the pile butt.

Ten piles were driven and withdrawn for test purposes. Their condition showed, upon examination, that they had been driven through a stratum of large rocks without apparent damage to the points or to the whole. Subsequent tests of these 10 piles for columnar loads developed an average load bearing capacity of 150 tons before failure, each failure being a compression failure and not a columnar failure.

The manufacturing process is interesting. A reinforcing cage of longitudinal steel bars, wrapped spirally with wire hooping, is made up and placed in steel molds. After the mold is filled with a specially prepared concrete mix, it is spun in a horizontal position, for approximately 15 minutes, at varying rates of speed. The spinning compacts the concrete into a dense mass and forms a hollow core in the center of the pile, from which the name hollowspun is derived. In street lighting columns this hollow core is used for wiring, and in piles for jetting in place with water pressure.

These piles differ from the usual concrete piles in that the concrete attains an average crushing strength in 28 days of 5,000 pounds per square inch and will safely withstand the usual rough handling and the impacts of the largest pile driving hammers.



Standard Steel Trusses

STANDARD steel bowstring trusses available in a wide range of sizes to meet all requirements are an important item in the economical construction of various types of building. These trusses are widely used in garages, factory buildings, gymnasiums and auditoriums, various community buildings, dance halls, warehouses, hangars and similar construction where a wide roof span and clear floor space is desired.

These trusses are made according to standard engineering principles and meet the requirements of various cities and states. The top and bottom chords are each composed of two structural steel angles; the web members are steel angles and are connected to the chords by means of gusset plates. Three-



Standard Bowstring Trusses of Steel Meet the Requirements of a Wide Variety of Buildings.

quarter-inch machine rivets are used throughout. The top chords are of continuous curve and the height is $1/10$ the span. The top chords have holes punched for bolting on wood nailers. Angle clips for steel purlins or heavy timber construction are supplied when desired.

All trusses are assembled complete in the shop and all holes fitted to insure ease of erection. They are shipped in two sections up to 90 feet, longer ones in three sections, which are bolted together on the job before erection and hoisted into place. No riveting on the job is required.

Roofs built with these steel trusses can be of any type of roof construction, including poured concrete, light steel deck, steel channel purlins with heavy wood sheathing or light frame.

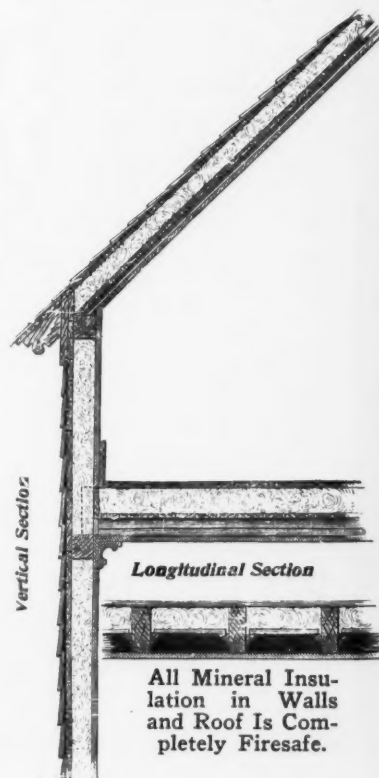


All Mineral Insulation

EFFECTIVE house insulation can be obtained by filling the space between studding, from sill to plate, and between rafters from plate to ridge, with a wool-like mineral product which is an excellent non-conductor and fireproof, and is low in cost. It is claimed that such insulation will save its cost in three or four winters by means of the saving in fuel besides adding greatly to comfort.

This insulation is an entirely mineral substance made by converting melted scoria into a fibrous state. It holds from 92 to 96 per cent of air in suspension which accounts for its high insulating value. It is easily applied.

For filling walls between the studs the material should be put in at the time the lath is being put on. After lathing up two or three feet at a time, the space is filled with the mineral. The wool is packed close to fill the space completely. The pressure of the wool behind the lath does not prevent the plaster keying properly being sufficiently pliable to give way to the pressure.



All Mineral Insulation in Walls and Roof Is Completely Firesafe.

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